UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

(Mark One)

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2021

or

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the Transition Period from to

Commission File No. 001-32919

Ascent Solar Technologies, Inc.
(Exact name of registrant as specified in its charter)

Delaware	**20-3672603**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
12300 Grant Street, Thornton, CO	**80241**
(Address of principal executive offices)	**(Zip Code)**

Registrant’s telephone number including area code: 720-872-5000

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of exchange on which registered
Common Stock, $0.0001 par value per share	ASTI	OTC Markets Group

Securities registered pursuant to Section 12(g) of the Act:
None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☐ No ☒

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Exchange Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). ☒ Yes ☐ No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, smaller reporting company, or an emerging growth company. See the definitions of “large accelerated filer,” “accelerated filer,” “smaller reporting company,” and “emerging growth company” in Rule 12b-2 of the Exchange Act:

Large accelerated filer	☐	Accelerated filer	☐
Non-accelerated filer	☒	Smaller reporting company	☒
		Emerging growth company	☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant has filed a report on and attestation to its management’s assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

As of June 30, 2021, the last business day of the registrant’s most recently completed second fiscal quarter, the aggregate market value of the registrant’s common stock held by non-affiliates was approximately $91,371,601 based upon the last reported sale price of the registrant’s common stock on that date as reported by OTC Markets Group (“OTC Markets”).

As of March 14, 2022, there were 30,586,804 shares of our common stock issued and outstanding.

ASCENT SOLAR TECHNOLOGIES, INC.
Form 10-K Annual Report
for the Fiscal Year ended December 31, 2021
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FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K includes "forward-looking statements" that involve risks and uncertainties. Forward-looking statements include statements concerning our plans, objectives, goals, strategies, future events, future net sales or performance, capital expenditures, financing needs, plans or intentions relating to acquisitions, business trends and other information that is not historical information and, in particular, appear under headings including "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Business." When used in this Annual Report, the words "estimates," "expects," "anticipates," "projects," "plans," "intends," "believes," "forecasts," "foresees," "likely," "may," "should," "goal," "target," and variations of such words or similar expressions are intended to identify forward-looking statements, but the absence of these words does not mean that a statement is not forward-looking. All forward-looking statements are based upon information available to us on the date of this Annual Report.

These forward-looking statements are subject to risks, uncertainties and other factors, many of which are outside of our control, that could cause actual results to differ materially from the results discussed in the forward-looking statements, including, among other things, the matters discussed in this Annual Report in the sections captioned "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations." Factors you should consider that could cause these differences are:

- The impact of the COVID-19 pandemic on our business, results of operations, cash flows, financial condition and liquidity;
- Our operating history and lack of profitability;
- The substantial doubt about our ability to continue as a going concern due to our history of operating losses;
- Our ability to develop demand for, and sales of, our products;
- Our ability to attract and retain qualified personnel to implement our business plan and corporate growth strategies;
- Our ability to develop sales, marketing and distribution capabilities;
- Our ability to successfully develop and maintain strategic relationships with key partners, including OEMs, system integrators, distributors, and e-commerce companies, who deal directly with end users in our target markets;
- The accuracy of our estimates and projections;
- Our ability to secure additional financing to fund our short-term and long-term financial needs;
- Our ability to maintain compliance with the OTC Markets listing standards;
- Changes in our business plan or corporate strategies;
- The extent to which we are able to manage the growth of our operations effectively, both domestically and abroad, whether directly owned or indirectly through licenses;
- The supply, availability and price of equipment, components and raw materials, including the elements needed to produce our photovoltaic modules;
- Our ability to expand and protect the intellectual property portfolio that relates to our consumer electronics, photovoltaic modules and processes;
- Our ability to maintain effective internal controls over financial reporting;
- General economic and business conditions, and in particular, conditions specific to the solar power industry;
- Potential litigation; and
- Other risks and uncertainties discussed in greater detail in the section captioned "Risk Factors."

There may be other factors that could cause our actual results to differ materially from the results referred to in the forward-looking statements. We undertake no obligation to publicly update or revise forward-looking statements to reflect subsequent events or circumstances after the date made, or to reflect the occurrence of unanticipated events, except as required by law.

References to “we,” “us,” “our,” “Ascent,” “Ascent Solar” or the “Company” in this Annual Report mean Ascent Solar Technologies, Inc.

PART I

Item 1. Business

Business Overview

We target high-value specialty solar markets. These include aerospace, defense, emergency management and consumer/OEM applications. This strategy enables us to fully leverage what we believe are the unique advantages of our technology, including flexibility, durability and attractive power to weight and power to area performance. It further enables us to offer unique, differentiated solutions in large markets with less competition, and more attractive pricing.

Specifically, we focus on commercializing our proprietary solar technology in three highest-value PV verticals:

I. Aerospace: Space, Near-space and Fixed Wing UAV
II. Public Sector: Defense and Emergency Management
III. Commercial Off-grid and Portable Power

We believe the value proposition of Ascent's proprietary solar technology not only aligns with the needs of customers in these verticals, but also overcomes many of the obstacles other solar technologies face in these unique markets. Ascent has the capability to design and develop finished products for end users in these areas as well as collaborate with strategic partners to design and develop custom integrated solutions for products like airships and fixed-wing UAVs. Ascent sees significant overlap in the needs of end users across some of these verticals and believes it can achieve economies of scale in sourcing, development, and production in commercializing products for these customers.

The integration of Ascent's solar modules into space, near space, and aeronautic vehicles with ultra-lightweight and flexible solar modules is an important market opportunity for the Company. Customers in this market have historically required a high level of durability, high voltage and conversion efficiency from solar module suppliers, and we believe our products are well suited to compete in this premium market.

Product History

In March 2008, we demonstrated initial operating capacity of our first production line by beginning production trials as an end-to-end integrated process. Initial operating capacity production trials resulted in average thin film device efficiencies of 9.5% and small area monolithically integrated module efficiencies of over 7.0%. During 2008, optimization trials resulted in thin film device efficiencies in the 9.5% to 11.5% range and corresponding module efficiencies in the 7.0% to 9.0% range. The test modules measured approximately 15 centimeters wide by 30 centimeters long, which is significant in that it demonstrates true production capability where these modules are processed side-by-side. In contrast, devices tested under laboratory conditions are usually small area in nature measuring 1 centimeter by 1 centimeter or less. During the first quarter of 2009, we began limited production of monolithically integrated flexible CIGS modules in our initial production line. Our primary business model, at that time, was based upon mass production of solar modules of varying lengths, sizes and configurations. We provided sample modules to potential customers and development partners in various industries to explore integration of our products into new applications.

In July 2009, we obtained independent verification by the U.S. Department of Energy's National Renewable Energy Laboratory ("NREL") that our modules of approximately 15 centimeters wide by 30 centimeters long measured 10.4% in conversion efficiency. In October 2009, NREL further verified our achievement of a manufacturing milestone of 14.0% cell efficiency as well as a peak efficiency of 11.4% for CIGS modules. Later, in December 2010, we achieved 12.1% module efficiency on the same form factor. In October 2010, we completed internal qualification testing of a flexible packaging solution which successfully passed the rigorous standard of one thousand (1,000) hours of damp heat testing (85% relative humidity and 85° C temperature) guideline set forth by International Electrotechnical Commission ("IEC") 61646 standards for performance and long-term reliability of thin film solar modules.

In February 2010, three of our product configurations were certified by an independent laboratory on a variety of U.S. Department of Defense ("DOD") rugged standards known as MIL-STD-810G. In October 2010, we completed full external certification under IEC 61646 at an independent laboratory of a two-meter module. Achieving this certification is required for building integrated photovoltaic ("BIPV") and building applied photovoltaic ("BAPV") applications used in commercial, industrial and residential rooftop markets. Certification activities will continue, as required, as we introduce new products and make changes or improvements to our already certified products.

In 2010, we received an award from R&D Magazine and were recognized as one of the 100 Most Innovative Technologies, based on our process of monolithic integration on polyimide substrate. In 2011, Time Magazine selected us as one of the 50 Best Inventions of the year. In 2015 Ascent Solar won its second R&D 100 Award. The 2015 award was given for the development of the MilPak™ platform, a military-grade (MIL-STD-810G tested) and fully integrated solar power generation and storage unit incorporated with a Maximum Peak Power Tracking (MPPT) management system. The MilPak platform is one of the most rugged, yet lightweight, power generation and storage solutions available, both attributes enabled by the use of Ascent's CIGS technology.

In January 2017, Ascent was awarded a contract to supply high-voltage SuperLight thin-film CIGS PV blankets. These 50W, fully laminated, flexible blankets were manufactured using a new process that was optimized for high performance in near-space conditions at elevated temperatures, and are custom designed for easy modular integration into series and parallel configurations to achieve the desired voltage and current required for such application.

In November 2017, Ascent introduced the next generation of our USB-based portable power systems with the XD™ series. The first product introduced was the XD-12 which, like previous products, is a folding, lightweight, easily stowable, PV system with USB power regulation. Unique to this generation of PV portable power is more PV power (12 Watts) and a 2.0 Amp smart USB output to enable the XD-12 to charge most smartphones, tablets, and USB-enabled devices as fast as a wall outlet. The enhanced smart USB circuit works with the device to be charged so that the device can determine the maximum power it is able to receive from the XD-12 and ensures the best possible charging performance directly from the sun.

Also in 2017, Ascent manufactured a new micro-module for a space customer, approximately 12.8mm x 50mm (0.5in x 2.0in) in size that is ideal for both laboratory-scale environmental testing, and for subsequent integration into flight experiments.

In February 2018, the Company introduced the second product in our XD series. Delivering up to 48 Watts of solar power, we believe the durable and compact Ascent XD-48 Solar Charger is the ideal solution for charging many portable electronics and off-grid power systems. The XD-48's versatility allows it to charge both military and consumer electronics directly from the sun wherever needed. Like the XD-12, the XD-48 has a compact and portable design, and its rugged, weather-resistant construction withstands shocks, drops, damage and even minor punctures to power through the harshest conditions.

In March 2018, we collaborated with a European based customer for their lighter-than-air, helium-filled airship project, which was based on our newly developed ultra-light modules with substrate material that was half of the thickness of our standard modules. In 2019, we completed a repeat order from the same customer who had since established its airship development operation in the US. In 2020, we received a third and enlarged order from the same customer and completed the order in the second quarter of 2021. Most recently, in the 4th quarter of 2021 we received a fourth order with a targeted ship date in the 2nd quarter of 2022.

On September 15, 2021, the Company entered into a Long-Term Supply and Joint Development Agreement ("JDA") with TubeSolar AG ("TubeSolar"), a significant existing stakeholder in the Company. Under the terms of the JDA, the Company will produce, and TubeSolar will purchase, thin-film PV foils ("PV Foils") for use in TubeSolar's solar modules for agricultural photovoltaic ("APV") applications that require solar foils for its production. Under the JDA, the Company will receive up (i) to $4 million of non-recurring engineering ("NRE") fees, (ii) up to $13.5 million of payments upon achievement of certain agreed production and cost structure milestones, and (iii) product revenues from sales of PV Foils to TubeSolar. The JDA has no fixed term, and may only be terminated by either party for breach.

The Company and TubeSolar have also jointly established a subsidiary company in Germany, in which TubeSolar holds a minority stake of 30% (the "JV"). The purpose of the JV is to establish and operate a PV manufacturing facility in Germany that will produce and deliver PV Foils exclusively to TubeSolar. Until the JV facility is fully operational, PV Foils will be manufactured in the Company's existing facility in Thornton, Colorado. The parties expect to jointly develop next generation tooling for use in manufacturing PV Foils at the JV facility. The Company purchased 17,500 shares of the JV for 1 Euro per share, on November 10, 2021.

We continue to design and manufacture PV integrated portable power applications for commercial and military users, including the US Marine Corps, US AF Special Operations Command, US Special Operations Command, US Army Special Operations Command, US Army Futures Command, and others. Due to the high durability enabled by the monolithic integration employed by our technology, the capability to customize modules into different form factors and what we believe is the industry leading light weight and flexibility provided by our modules, we believe that the potential applications for our products are extensive, including anywhere that may need power generation such as in disaster recovery and emergency preparedness, commercial and personal adventure expeditions to remote areas, humanitarian efforts in areas with poor power infrastructure, photography and filming involved in wildlife observation, to name a few.

Commercialization and Manufacturing Strategy

We manufacture our products by affixing a thin CIGS layer to a flexible, plastic substrate using a large format, roll-to-roll process that permits us to fabricate our flexible PV modules in an integrated sequential operation. We use proprietary monolithic integration techniques which enable us to form complete PV modules with little to no costly back-end assembly of inter-cell connections. Traditional PV manufacturers assemble PV modules by bonding or soldering discrete PV cells together. This manufacturing step typically increases manufacturing costs and, at times, proves detrimental to the overall yield and reliability of the finished product. By reducing or eliminating this added step, using our proprietary monolithic integration techniques, we believe we can achieve cost savings in, and increase the reliability of, our PV modules. All tooling necessary for us to meet our near-term production requirements is installed in our Thornton, Colorado plant.

We plan to continue the development of our current PV technology to increase module efficiency, improve our manufacturing tooling and process capabilities and reduce manufacturing costs. We also plan to continue to take advantage of research and development contracts to fund a portion of this development.

Advantages of CIGS on a Flexible Plastic Substrate

Thin film PV solutions differ based on the type of semiconductor material chosen to act as a sunlight absorbing layer, and also on the type of substrate on which the sunlight absorbing layer is affixed. To the best of our knowledge, we believe we are the only company in the world currently focused on commercial scale production of PV modules using CIGS on a flexible, plastic substrate with monolithic integration. We utilize CIGS as a semiconductor material because, at the laboratory level, it has a higher demonstrated cell conversion efficiency than amorphous silicon ("a-Si") and cadmium telluride ("CdTe"). We also believe CIGS offers other compelling advantages over both a-Si and CdTe, including:

- *CIGS versus a-Si:* Although a-Si, like CIGS, can be deposited on a flexible substrate, its conversion efficiency, which already is generally much lower than that of CIGS, measurably degrades when it is exposed to ultraviolet light, including natural sunlight. To mitigate such degradation, manufacturers of a-Si solar cells are required to implement measures that add cost and complexity to their manufacturing processes.

- *CIGS versus CdTe:* Although CdTe modules have achieved conversion efficiencies that are generally comparable to CIGS in production, we believe CdTe has never been successfully applied to a flexible substrate on a commercial scale. We believe the use of CdTe on a rigid, transparent substrate, such as glass, is unsuitable for a number of our applications. We also believe CIGS can achieve higher conversion efficiencies than CdTe in production.

We believe our choice of substrate material further differentiates us from other thin-film PV manufacturers. We believe the use of a flexible, lightweight, insulating substrate that is easier to install provides clear advantages for our target markets, especially where rigid substrates are unsuitable. We also believe our use of a flexible, plastic substrate provides us significant cost advantages because it enables us to employ monolithic integration techniques on larger components, which we believe are unavailable to manufacturers who use flexible, metal substrates. Accordingly, we are able to significantly reduce part count, thereby reducing the need for costly back end assembly of inter cell connections. As the only company, to our knowledge, focused on the commercial production of PV modules using CIGS on a flexible, plastic substrate with monolithic integration, we believe we have the opportunity to address the defense, aerospace, transportation, off grid, portable power and other weight-sensitive markets with transformational high quality, value added product applications. It is these same unique features and our overall manufacturing process that enable us to produce extremely robust, light and flexible products.

Competitive Strengths

We believe we possess a number of competitive strengths that provide us with an advantage over our competitors.

- ***We are a pioneer in CIGS technology with a proprietary, flexible, lightweight, high efficiency PV thin film product that positions us to penetrate a wide range of attractive high value added markets such as off grid, portable power, transportation, defense, aerial, and other markets.*** By applying CIGS to a flexible plastic substrate, we have developed a PV module that is efficient, lightweight and flexible; with the highest power-to-weight ratio in at-scale commercially available solar. The market for electronic components, such as electronic packages, casings and accessories, as well as defense portable power systems, transportation integrated applications and space and near-space solar power application solutions represent a significant premium market for the Company. Relative to our thin film competitors, we believe our advantage in thin film CIGS on plastic technology provides us with a superior product offering for these strategic market segments.

- ***We have the ability to manufacture PV modules for different markets and for customized applications without altering our production processes.*** Our ability to produce PV modules in customized shapes and sizes, or in a variety of shapes and sizes simultaneously, without interrupting production flow, provides us with flexibility in addressing target markets and product applications, and allows us to respond quickly to changing market conditions. Many of our competitors are limited by their technology and/or their manufacturing processes to a more restricted set of product opportunities.

- ***Our integrated, roll-to-roll manufacturing process and proprietary monolithic integration techniques provide us a potential cost advantage over our competitors.*** Historically, manufacturers have formed PV modules by manufacturing individual solar cells and then interconnecting them. Our large format, roll-to-roll manufacturing process allows for integrated continuous production. In addition, our proprietary monolithic integration techniques allow us to utilize laser patterning to create interconnects, thereby creating PV modules at the same time we create PV cells. In so doing, we are able to reduce or eliminate an entire back end processing step, saving time as well as labor and manufacturing costs relative to our competitors.

- ***Our lightweight, powerful, and durable solar panels provide a performance advantage over our competitors.*** For applications where a premium is placed on the weight and profile of the product, our ability to integrate our PV modules into portable packages and cases offers the customer a lightweight and durable solution for all their portable electronics.

- ***Our proven research and development capabilities position us to continue the development of next generation PV modules and technologies.*** Our ability to produce CIGS based PV modules on a flexible plastic substrate is the result of a concerted research and development effort that began more than twenty years ago. We continue to pursue research and development in an effort to drive efficiency improvements in our current PV modules and to work toward next generation technologies and additional applications.

- ***Our manufacturing process can be differentiated into two distinct functions; a front-end module manufacturing process and a back-end packaging process.*** Our ability to produce finished unpackaged rolls of CIGS material for shipment worldwide to customers for encapsulation and integration into various products enhances our ability to work with partners internationally and domestically.

Markets and Marketing Strategy

We target high-value specialty solar markets. These include aerospace, defense, emergency management and consumer/OEM applications. This strategy enables us to fully leverage the unique advantages of our technology, including flexibility, durability and attractive power to weight and power to area performance. It further enables us to offer unique, differentiated solutions in large markets with less competition, and more attractive pricing.

Specifically, we focus on commercializing our proprietary solar technology in three highest-value PV verticals:

I. Aerospace: Space, Near-space and Fixed Wing UAV
II. Public Sector: Defense and Emergency Management
III. Commercial Off-grid and Portable Power

We believe the value proposition of Ascent’s proprietary solar technology not only aligns with the needs of customers in these verticals, but also overcomes many of the obstacles other solar technologies face in these unique markets. Ascent has the capability to design and develop finished products for end users in these areas as well as collaborate with strategic partners to design and develop custom integrated solutions for products like airships and fixed-wing UAVs. Ascent sees significant overlap in the needs of end users across some of these verticals and believes it can achieve economies of scale in sourcing, development, and production in commercializing products for these customers.

The integration of Ascent's solar modules into space, near space, and aeronautic vehicles with ultra-lightweight and flexible solar modules is an important market opportunity for the Company. Customers in this market have historically required a high level of durability, high voltage and conversion efficiency from solar module suppliers, and we believe our products are well suited to compete in this premium market. In May 2014, together with our partners, Silent Falcon UAS Technologies and Bye Aerospace, we announced the successful first flight of a production version of the Silent Falcon™ Unmanned Aircraft Systems, powered by Ascent’s ultra-lightweight, flexible PV modules. In July 2014, our ultra-lightweight, flexible PV modules were selected by Vanguard Space Technologies for their NASA Small Business Innovative Research program. The NASA program is intended to develop an economical, lightweight alternative to existing and emerging high-cost solar arrays for high-power space applications. We expect opportunities in this segment to develop rapidly due to customers' extensive development, testing and evaluation processes.

In March 2016, the Company announced a major breakthrough of our high-voltage superlight bare modules, achieving a power-to-weight ratio of 1,700 watts per kilogram at AM0 environment. What we believe is the "best-in-class" specific power is crucial to the aerospace industry where every pound of weight reduction would translate to incremental cost savings or increased in payloads. In December 2016, Ascent was selected by the Japan Aerospace Exploration Agency ("JAXA") as part of their next round of evaluations for providing solar technology for an upcoming mission to Jupiter, as well as to address additional missions. This decision followed an earlier round of investigation with promising results, during which the Company's flexible, monolithically integrated CIGS solar module was subjected to environmental extremes and continued to operate well. During the first phase of JAXA's evaluation, Ascent's PV was successfully tested below -146°C (-231°F) and up to +190°C (+374 °F), and to only 4% of the sunlight generally received in earth's orbit. In addition, JAXA has subjected Ascent's PV to radiation and mechanical testing.

In 2017 we continued to solidify our position in the space and near-space markets; these challenging requirements and environments allow for the full utilization of what we believe is the unique nature and advantages of our lightweight, flexible monolithically integrated CIGS PV. Through continued work in the PV-powered drone field, Ascent made significant strides in providing PV power to high-altitude airships and next-generation space applications.

In January 2017, Ascent was awarded a contract to supply high-voltage SuperLight thin-film CIGS PV blankets. These 50W, fully laminated, flexible blankets were manufactured using a new process that was optimized for high performance in near-space conditions at elevated temperatures, and are custom designed for easy modular integration into series and parallel configurations to achieve the desired voltage and current required for such application.

In November 2017, Ascent fulfilled a third order from JAXA for custom PV products designed specifically for their upcoming solar sail deployment demonstration project. This project was comprised of small area test cells and large, 19.5cm x 30cm monolithically integrated modules, all on a very thin, 25-micron (0.001 inch) plastic substrate which is half the thickness of Ascent's production substrate for a standard product. In space, near-space, and drone applications, the PV substrate accounts for a significant portion of the product's overall mass; the PV construction on the new 25-micron substrates represents a major breakthrough for these markets. JAXA placed this order after achieving the desired experimental results from the previous shipments and subsequent electrical, mechanical and environmental testing. The 19.5cm x 30cm module is a custom design to match the anticipated deployment mechanism and PV layout for the final Jovian spacecraft. We continue to receive testing orders from JAXA.

Also in 2017, Ascent fulfilled a new order, with another repeat space customer, to manufacture a new micro-module, approximately 12.8mm x 50mm (0.5in x 2.0in) in size that is ideal for both laboratory-scale environmental testing, and for subsequent integration into flight experiments.

In 2015 Ascent Solar won its second R&D 100 Award, the 2015 award was given for the development of the MilPak platform, a military-grade solar power generation and storage unit. The MilPak platform is one of the most rugged, yet lightweight, power generation and storage solutions available, both attributes enabled by the use of Ascent's CIGS technology.

The military market has a unique set of requirements we believe are well suited to our products. When integrated with fabric to form re-deployable arrays, our highly efficient, rugged, lightweight modules may allow soldiers to minimize battery loads, reduce the use of conventional fuels, and increase safety through the streamlining of fuel transport operations, providing the front-line units with maximum resilience and helping to increase operational efficiency. We are also working to expand our foldable line of outdoor solar chargers, such as the XD-12 and the XD-48, which are well suited for the individual soldier or for the bigger power needs of a platoon with the ability of several chargers to be strung together. Our modules can also provide a reliable source of renewable power in remote areas, regardless of local infrastructure. We will continue to seek to reach the military market through partnerships with top systems providers, by providing Government Service Administration Letters of Supply, and through direct sales and other blanket purchase agreements with the government.

Transportation integrated PV, or integration of our flexible solar modules with vehicles such as commercial trucks, buses, trains and passenger cars, is another market segment that we believe represents a significant opportunity. Due to their flexible form and durable, lightweight properties, our modules can be fitted to the exterior of various vehicles to provide supplemental power without significantly affecting the aerodynamics, weight or aesthetics of the vehicle. We are currently working with multiple integrators and OEMs to develop effective value-added solutions for this market.

During the third quarter of 2017, Ascent Solar demonstrated its breadth of capabilities at the US Special Operations Command ("SOCOM") exclusive Technical Experimentation ("TE") 17-3 Event in Washington, DC. SOCOM is tasked, by the Department of Defense ("DoD"), with providing Special Operations Forces ("SOF") with the latest war fighting technology available; in support of this effort, SOCOM sponsors an annual TE event. In July of 2017, SOCOM requested the participation of companies who have proficiency in the areas of Satellite Communication ("SATCOM") and Unattended Ground Sensors ("UGS") for a TE event. Over 30 companies were selected to participate, and Ascent Solar was one of only 2 companies selected to participate who didn't actually make SATCOM or UGS products. Ascent Solar was selected on the basis and recognition that one of the primary issues facing the DoD today is the ability to power all of their war fighting technology. Ascent's diverse line-up of rugged and lightweight portable solar products offers the potential for the DoD to generate unattended ongoing power, which could save lives and increase the efficiency of the war fighting effort. Ascent was honored to be chosen to participate, and the assessed score we received is indicative of a capability that has "high potential for SOF use with few limitations".

During the third quarter of 2018, Ascent Solar was once again selected to demonstrate its breadth of capabilities at the SOCOM exclusive TE 18-3 Event in Washington, DC. In July of 2018, SOCOM requested the participation of companies who have proficiency in the areas of Intelligence, Surveillance and Reconnaissance (ISR), Small Unmanned Aerial Systems (SUAS) and Mobility for the TE event. Over 50 companies were selected to participate, and Ascent Solar was one of only 2 companies selected for a second straight year.

We continue to supply our strategic partners with PV modules to support their development, testing and certification of new integrated PV products, including product testing by several branches of the U.S. military. We believe that our high-power density flexible solar modules enable new applications for solar power. By creating mutually beneficial partnerships and strategically penetrating the markets discussed above, we plan to develop the landscape of mobile solar power generation with advanced technology end products.

During 2021, the ASTI team further advanced product acceptance into the highly stringent space market with demonstrated solar module survivability under the guidance of NASA Marshal Space Flight Center (MSFC) MISSE X flight experiment on the International Space Station (ISS), advancing our Technology Readiness Level (TRL) to 6, with subsequent flights in 2022-23, both NASA and commercial, intended to achieve TRL 7. TRL 8 is commonly accepted as space qualified. Also during 2021, the ASTI team was able to utilize an ultra-thin lamination made from the coating material used during MISSE X to build custom modules for a customer to be tested for a future flight.

Competition

We have pivoted our strategic focus away from large scale utility projects of the traditional solar markets. We believe our thin film, monolithically integrated CIGS technology enables us to deliver sleek, lightweight, rugged, high performance solutions to serve these markets as competitors from other thin film and c-Si companies emerge. The landscape of thin film manufacturers encompasses a broad mix of technology platforms at various stages of development and consists of a number of medium and small companies.

The market for traditional, grid connected PV products is dominated by large manufacturers of c-Si technology, although thin film technology on glass has begun to emerge among the major players. We anticipate that while these large manufacturers may continue to dominate the market with their silicon-based products, thin film manufacturers will likely capture an increasingly larger share of the market, as is evident from the success of First Solar (CdTe) and Solar Frontier (CIGS), both among the top 20 producers worldwide. In 2019, crystalline silicon PV technology represented over 90% of global market revenue and production, with the balance captured by thin film. Approximately half of thin film production is CdTe production, with the other half being split between CIGS and a-Si.

We believe that our modules offer unique advantages. Their flexibility, low areal density (mass per unit area), and high specific power (power per unit mass) enable use on weight-sensitive applications, such as portable power, conformal aircraft surfaces, high altitude long endurance (HALE) fixed wing and lighter than air (LTA) vehicles, and space applications that are unsuitable for glass-based modules. Innovative product design, customer focused development, and our rapid prototyping capability yield modules that could be integrated into virtually any product to create a source of renewable energy. Whether compared to glass based or other flexible modules, our products offer competitive advantages making them unique in comparison to competing products. We consider PowerFilm Solar, Global Solar, MiaSolé, and Flisom to be our closest competitors in terms of technology in the specialty PV market.

Research and Development and Intellectual Property

We intend to continue to invest in research and development in order to provide near term improvements to our manufacturing process and products, as well as to identify next generation technologies relevant to both our existing and potential new markets. During the years ended December 31, 2021 and 2020 we incurred approximately $4,140,319 and $1,165,193, respectively, in research and development costs, which include research and development incurred in relation to our government contracts, as well as manufacturing costs incurred while developing our product lines and manufacturing process.

Our technology was initially developed at ITN beginning in 1994. In early 2006, ITN assigned to us certain CIGS PV-specific technologies, and granted to us a perpetual, exclusive, royalty free, worldwide license to use these technologies in connection with the manufacture, development, marketing and commercialization of CIGS PV to produce solar power. In addition, certain of ITN's existing and future proprietary process and control technologies, although nonspecific to CIGS PV, were assigned to us. ITN retained the right to conduct research and development activities in connection with PV materials, and we agreed to grant a license back to ITN for improvements to the licensed technologies and intellectual property outside of the CIGS PV field.

We protect our intellectual property through a combination of trade secrets and patent protections. We own the following patents:

Issued Patents and Registrations

1 US Patent No. 9,640,692 entitled "Flexible Photovoltaic Array with Integrated Wiring and Control Circuitry, and Associated Methods" (issued October 12, 2010) (co-owned with PermaCity Corporation)

2 US Patent No. 8,426,725 entitled "Apparatus and Method for Hybrid Photovoltaic Device Having Multiple, Stacked, Heterogeneous, Semiconductor Junctions" (issued April 23, 2013)

3 US Patent No. 8,465,589 entitled "Machine and Process for Sequential Multi-Sublayer Deposition of Copper Indium Gallium Diselenide Compound Semiconductors" (issued June 18, 2013)

4 US Patent No. D697,502 entitled "Mobile Electronic Device Case" (issued January 14, 2014)

5 US Patent No. 8,648,253 entitled "Machine and Process for Continuous, Sequential, Deposition of Semiconductor Solar Absorbers Having Variable Semiconductor Composition Deposited in Multiple Sublayers" (issued February 11, 2014)

6 US Patent No. D781,228 entitled Pocket-Sized Photovoltaic Based Fully Integrated Portable Power System (issued March 14, 2017)

7 US Patent No. 9,601,650 entitled Machine and Process for Continuous, Sequential, Deposition of Semiconductor Solar Absorbers Having Variable Semiconductor Composition Deposited in Multiple Sublayers (issued March 21, 2017)

8 US Patent No. 9,634,175 entitled Systems and Methods for Thermally Managing High-Temperature Processes on Temperature Sensitive Substrates (issued April 25, 2017)

9 US Patent No. 9,640,706 entitled Hybrid Multi-Junction Photovoltaic Cells and Associated Methods (issued May 2, 2017)

10 US Patent No. 9,640,692 entitled Flexible Photovoltaic Array with Integrated Wiring and Control Circuitry, and Associated Methods (issued May 2, 2017)

11 US Patent No. 9,653,635 entitled Flexible High-Voltage Adaptable Current Photovoltaic Modules and Associated Methods (issued May 16, 2017)

US Patent No. 9,780,242 entitled “Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates” (issued October 3, 2017)

Suppliers

We rely on several unaffiliated companies to supply certain raw materials used during the fabrication of our PV modules and PV integrated electronics. We acquire these materials on a purchase order basis and do not have long term purchase quantity commitments with the suppliers, although we may enter into such contracts in the future. We currently acquire all of our high temperature plastic from one supplier, although alternative suppliers of similar materials exist. We purchase component molybdenum, copper, indium, gallium, selenium and indium tin oxides from a variety of suppliers. We also currently are in the process of identifying and negotiating arrangements with alternative suppliers of materials in the United States and Asia.

The manufacturing equipment and tools used in our production process have been purchased from various suppliers in Europe, the United States and Asia. Although we have had good relations with our existing equipment and tools suppliers, we monitor and explore opportunities for developing alternative sources to drive our manufacturing costs down.

Employees

As of December 31, 2021, we had 51 full-time and 3 part-time employees.

Company History

We were formed in October 2005 from the separation by ITN of its Advanced Photovoltaic Division and all of that division’s key personnel and core technologies. ITN, a private company incorporated in 1994, is an incubator dedicated to the development of thin film, PV, battery, fuel cell and nanotechnologies. Through its work on research and development contracts for private and government entities, ITN developed proprietary processing and manufacturing know-how applicable to PV products generally, and to CIGS PV products in particular. Our company was established by ITN to commercialize its investment in CIGS PV technologies. In January 2006, ITN assigned to us all its CIGS PV technologies and trade secrets and granted to us a perpetual, exclusive, royalty free worldwide license to use certain of ITN’s proprietary process, control and design technologies in the production of CIGS PV modules. Upon receipt of the necessary government approvals in January 2007, ITN assigned government funded research and development contracts to us and also transferred the key personnel working on the contracts to us.

Corporate Information

We were incorporated under the laws of Delaware in October 2005. Our principal business office is located at 12300 Grant Street, Thornton, Colorado 80241, and our telephone number is (720) 872-5000. Our website address is *www.AscentSolar.com*. Information contained on our website or any other website does not constitute, and should not be considered, part of this Annual Report.

Available Information

We file with the Securities and Exchange Commission (“SEC”) our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and all amendments to those reports, proxy statements and registration statements. Such filings are available to the public over the internet at the SEC’s website at http://www.sec.gov. We make available free of charge on, or through, our website at *www.AscentSolar.com* our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to these reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended (“Exchange Act”) as soon as reasonably practicable after we file these materials with the SEC.

Item 1A. Risk Factors

The risks included here are not exhaustive or exclusive. Other sections of this Annual Report may include additional factors which could adversely affect our business, results of operations and financial performance. We operate in a very competitive and rapidly changing environment. New risk factors emerge from time to time, and it is not possible for management to predict all such risk factors, nor can it assess the impact of all such risk factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements. Given these risks and uncertainties, investors should not place undue reliance on forward-looking statements as a prediction of actual results.

Risks related to the Coronavirus and COVID-19 Pandemic

The COVID-19 pandemic in the United States and world-wide has caused business disruption which may negatively impact the Company's operations and financial results. Public health officials have recommended and mandated precautions to mitigate the spread of COVID-19, including prohibitions on travel, congregating in heavily populated areas and stat-at-home orders or similar measures.

The COVID-19 pandemic affected the Company in many ways just as the whole world experienced. These included but were not limited to:

- Severe disruption to our restructuring and recapitalization efforts due to travel restrictions and lock-down measures implemented by authorities across the globe;
- Disruption to workforce scheduling and recruitment initiatives after new capital was secured;
- Longer lead time and higher cost in raw materials and equipment parts;
- Raising labor cost in line with overall inflation witnessed across the nation; and
- Extended products and development cycle and longer delivery time to our customers.

These and other impacts of the COVID-19 pandemic could have the effect of heightening many of the other risk factors disclosed in this Annual Report on Form 10-K. The ultimate impact depends on the severity and duration of the current COVID-19 pandemic and actions taken by governmental authorities and other third parties in response, each of which is uncertain, rapidly changing and difficult to predict. Any of these disruptions could adversely impact our business and results of operations.

Risks Relating to Our Business

Our continuing operations will require additional capital which we may not be able to obtain on favorable terms, if at all, or without dilution to our stockholders. Since inception, we have incurred significant losses. We expect to continue to incur net losses in the near term. For the year ended December 31, 2021, our cash used in operations was $9,404,443. At December 31, 2021, we had cash and equivalents on hand of $5,961,760.

Although we have commenced production at our manufacturing facility, we do not expect that sales revenue and cash flows will be sufficient to support operations and cash requirements until we have fully implemented our new strategy of focusing on high value PV products. Product revenues did not result in a positive cash flow for the 2021 year, and are not anticipated to result in a positive cash flow for the next twelve months.

During 2021 and 2020, we entered into multiple financing agreements to fund operations, raising an aggregate of $18,250,000 in net proceeds. We do not expect that sales revenue and cash flows will be sufficient to support operations and cash requirements for the foreseeable future, and we will depend on raising additional capital to maintain operations until we become profitable. There is no assurance that we will be able to raise additional capital on acceptable terms or at all. If we raise additional funds through the issuance of equity or convertible debt securities, the percentage ownership of our existing stockholders could be significantly diluted, and these newly issued securities may have rights, preferences or privileges senior to those of existing stockholders. If we raise additional funds through debt financing, which may involve restrictive covenants, our ability to operate our business may be restricted. If adequate funds are not available or are not available on acceptable terms, if and when needed, our ability to fund our operations, take advantage of unanticipated opportunities, develop or enhance our products, expand capacity or otherwise respond to competitive pressures could be significantly limited, and our business, results of operations and financial condition could be materially and adversely affected.

Our auditors have expressed substantial doubt about our ability to continue as a going concern. Our auditors' report on our December 31, 2021 consolidated financial statements expresses an opinion that our capital resources as of the date of their audit report were not sufficient to sustain operations or complete our planned activities for the year 2022 unless we raised additional funds. Additionally, as a result of the Company's recurring losses from operations, and the need for additional financing to fund its operating and capital requirements, there is uncertainty regarding the Company's ability to maintain liquidity sufficient to operate its business effectively, which raises doubt as to the Company's ability to continue as a going concern. Management cannot provide any assurances that the Company will be successful in accomplishing any of its plans. Our December 31, 2021 consolidated financial statements do not include any adjustments that might be necessary should the Company be unable to continue as a going concern.

We have a limited history of operations, have not generated significant revenue from operations and have had limited production of our products. We have a limited operating history and have generated limited revenue from operations. Currently we are producing products in quantities necessary to meet current demand. Under our current business plan, we expect losses to continue until annual revenues and gross margins reach a high enough level to cover operating expenses. Our ability to achieve our business, commercialization and expansion objectives will depend on a number of factors, including whether:

- We can generate customer acceptance of and demand for our products;
- We successfully ramp up commercial production on the equipment installed;
- Our products are successfully and timely certified for use in our target markets;
- We successfully operate production tools to achieve the efficiencies, throughput and yield necessary to reach our cost targets;
- The products we design are saleable at a price sufficient to generate profits;
- We raise sufficient capital to enable us to reach a level of sales sufficient to achieve profitability on terms favorable to us;
- We are able to successfully design, manufacture, market, distribute and sell our products;
- We effectively manage the planned ramp up of our operations;
- We successfully develop and maintain strategic relationships with key partners, including OEMs, system integrators and distributors, retailers and e-commerce companies, who deal directly with end users in our target markets;
- Our ability to maintain the listing of our common stock on the OTC Markets;
- Our ability to achieve projected operational performance and cost metrics;
- Our ability to enter into commercially viable licensing, joint venture, or other commercial arrangements; and
- The availability of raw materials.

Each of these factors is critical to our success and accomplishing each of these tasks may take longer or cost more than expected or may never be accomplished. It also is likely that problems we cannot now anticipate will arise. If we cannot overcome these problems, our business, results of operations and financial condition could be materially and adversely affected.

We have to date incurred net losses and may be unable to generate sufficient sales in the future to become profitable. We incurred a net loss of $6,000,003 for the year ended December 31, 2021 and reported an accumulated deficit of $427,782,788 as of December 31, 2021. We expect to incur net losses in the near term. Our ability to achieve profitability depends on a number of factors, including market acceptance of our specialty PV products at competitive prices. If we are unable to raise additional capital and generate sufficient revenue to achieve profitability and positive cash flows, we may be unable to satisfy our commitments and may have to discontinue operations.

Our business is based on a new technology, and if our PV modules or processes fail to achieve the performance and cost metrics that we expect, then we may be unable to develop demand for our PV modules and generate sufficient revenue to support our operations. Our CIGS on flexible plastic substrate technology is a relatively new technology. Our business plan and strategies assume that we will be able to achieve certain milestones and metrics in terms of throughput, uniformity of cell efficiencies, yield, encapsulation, packaging, cost and other production parameters. We cannot assure you that our technology will prove to be commercially viable in accordance with our plan and strategies. Further, we or our strategic partners and licensees may experience operational problems with such technology after its commercial introduction that could delay or defeat the ability of such technology to generate revenue or operating profits. If we are unable to achieve our targets on time and within our planned budget, then we may not be able to develop adequate demand for our PV modules, and our business, results of operations and financial condition could be materially and adversely affected.

Our failure to further refine our technology and develop and introduce improved PV products could render our PV modules uncompetitive or obsolete and reduce our net sales and market share. Our success requires us to invest significant financial resources in research and development to keep pace with technological advances in the solar energy industry. However, research and development activities are inherently uncertain, and we could encounter practical difficulties in commercializing our research results. Our expenditures on research and development may not be sufficient to produce the desired technological advances, or they may not produce corresponding benefits. Our PV modules may be rendered obsolete by the technological advances of our competitors, which could harm our results of operations and adversely impact our net sales and market share.

Failure to expand our manufacturing capability successfully at our facilities would adversely impact our ability to sell our products into our target markets and would materially and adversely affect our business, results of operations and financial condition. Our growth plan calls for production and operations at our facility. Successful operations will require substantial engineering and manufacturing resources and are subject to significant risks, including risks of cost overruns, delays and other risks, such as geopolitical unrest that may cause us not to be able to successfully operate in other countries. Furthermore, we may never be able to operate our production processes in high volume or at the volumes projected, make planned process and equipment improvements, attain projected manufacturing yields or desired annual capacity, obtain timely delivery of components, or hire and train the additional employees and management needed to scale our operations. Failure to meet these objectives on time and within our planned budget could materially and adversely affect our business, results of operations and financial condition.

We may be unable to manage the expansion of our operations and strategic alliances effectively. We will need to significantly expand our operations and form beneficial strategic alliances in order to reduce manufacturing costs through economies of scale and partnerships, secure contracts of commercially material amounts with reputable customers and capture a meaningful share of our target markets. To date, we have not formed such strategic alliances and can give no assurances that we will be able to do so. To manage the expansion of our operations and alliances, we will be required to improve our operational and financial systems, oversight, procedures and controls and expand, train and manage our growing employee base. Our management team will also be required to maintain and cultivate our relationships with partners, customers, suppliers and other third parties and attract new partners, customers and suppliers. In addition, our current and planned operations, personnel, facility size and configuration, systems and internal procedures and controls, even when augmented through strategic alliances, might be inadequate or insufficient to support our future growth. If we cannot manage our growth effectively, we may be unable to take advantage of market opportunities, execute our business strategies or respond to competitive pressures, resulting in a material and adverse effect to our business, results of operations and financial condition.

We depend on a limited number of third-party suppliers for key raw materials, and their failure to perform could cause manufacturing delays and impair our ability to deliver PV modules to customers in the required quality and quantity and at a price that is profitable to us. Our failure to obtain raw materials and components that meet our quality, quantity and cost requirements in a timely manner could interrupt or impair our ability to manufacture our products or increase our manufacturing cost. Most of our key raw materials are either sole sourced or sourced by a limited number of third-party suppliers. As a result, the failure of any of our suppliers to perform could disrupt our supply chain and impair our operations. Many of our suppliers are small companies that may be unable to supply our increasing demand for raw materials as we implement our planned expansion. We may be unable to identify new suppliers in a timely manner or on commercially reasonable terms. Raw materials from new suppliers may also be less suited for our technology and yield PV modules with lower conversion efficiencies, higher failure rates and higher rates of degradation than PV modules manufactured with the raw materials from our current suppliers.

Our products may never gain sufficient market acceptance, in which case we would be unable to sell our products or achieve profitability. Demand for our products may never develop sufficiently, and our products may never gain market acceptance, if we fail to produce products that compare favorably against competing products on the basis of cost, quality, weight, efficiency and performance. Demand for our products also will depend on our ability to develop and maintain successful relationships with key partners, including distributors, retailers, OEMs, system integrators and value-added resellers. If our products fail to gain market acceptance as quickly as we envision or at all, our business, results of operations and financial condition could be materially and adversely affected.

We are targeting emerging markets for a significant portion of our planned product sales. These markets are new and may not develop as rapidly as we expect or may not develop at all. Our target markets include portable power, defense, transportation, space and near space markets. Although certain areas of these markets have started to develop, some of them are in their infancy. We believe these markets have significant long-term potential; however, some or all of these markets may not develop and emerge as we expect. If the markets do develop as expected, there may be other products that could provide a superior product or a comparable product at lower prices than our products. If these markets do not develop as we expect, or if competitors are better able to capitalize on these markets our revenues and product margins may be negatively affected.

Failure to consummate strategic relationships with key partners in our various target market segments, such as defense and portable power, transportation, space and near space, and the respective implementations of the right strategic partnerships to enter these various specified markets, could adversely affect our projected sales, growth and revenues. We intend to sell thin-film PV modules for use in portable power systems, defense and portable power systems, transportation, space and near space solar panel applications. Our marketing and distribution strategy is to form strategic relationships with distributors, value added resellers and e-commerce to provide a foothold in these target markets. If we are unable to successfully establish working relationships with such market participants or if, due to cost, technical or other factors, our products prove unsuitable for use in such applications; our projected revenues and operating results could be adversely affected.

If sufficient demand for our products does not develop or takes longer to develop than we anticipate, we may be unable to grow our business, generate sufficient revenue to attain profitability or continue operations. The solar energy industry is currently dominated by the rigid crystalline silicon based technology. The extent to which our flexible thin film PV modules will be widely adopted is uncertain. Many factors, of which several are outside of our control, may affect the viability of widespread adoption and demand for our flexible PV modules.

We face intense competition from other manufacturers of thin-film PV modules and other companies in the solar energy industry. The solar energy and renewable energy industries are both highly competitive and continually evolving as participants strive to distinguish themselves within their markets and compete with the larger electric power industry. We believe our main sources of competition are other thin film PV manufacturers and companies developing other solar solutions, such as solar thermal and concentrated PV technologies.

Many of our existing and potential competitors have substantially greater financial, technical, manufacturing and other resources than we do. A competitor's greater size provides them with a competitive advantage because they often can realize economies of scale and purchase certain raw materials at lower prices. Many of our competitors also have greater brand name recognition, established distribution networks and large customer bases. In addition, many of our competitors have well-established relationships with our current and potential partners and distributors and have extensive knowledge of our target markets. As a result of their greater size, these competitors may be able to devote more resources to the research, development, promotion and sale of their products or respond more quickly to evolving industry standards and changes in market conditions than we can. Our failure to adapt to changing market conditions and to compete successfully with existing or future competitors could materially and adversely affect our business, results of operations and financial condition.

Problems with product quality or performance may cause us to incur warranty expenses, damage our market reputation and prevent us from maintaining or increasing our market share. If our products fail to perform as expected while under warranty, or if we are unable to support the warranties, sales of our products may be adversely affected or our costs may increase, and our business, results of operations and financial condition could be materially and adversely affected.

We may also be subject to warranty or product liability claims against us that are not covered by insurance or are in excess of our available insurance limits. In addition, quality issues can have various other ramifications, including delays in the recognition of revenue, loss of revenue, loss of future sales opportunities, increased costs associated with repairing or replacing products, and a negative impact on our goodwill and reputation. The possibility of future product failures could cause us to incur substantial expenses to repair or replace defective products. Furthermore, widespread product failures may damage our market reputation and reduce our market share causing sales to decline.

Currency translation risk may negatively affect our net sales, cost of equipment, cost of sales, gross margin or profitability and could result in exchange losses. Although our reporting currency is the U.S. dollar, we may conduct business and incur costs in the local currencies of other countries in which we operate, make sales or buy equipment or materials. As a result, we are subject to currency translation risk. Our future contracts and obligations may be exposed to fluctuations in currency exchange rates, and, as a result, our capital expenditures or other costs may exceed what we have budgeted. Further, changes in exchange rates between foreign currencies and the U.S. dollar could affect our net sales and cost of sales and could result in exchange losses. We cannot accurately predict future exchange rates or the overall impact of future exchange rate fluctuations on our business, results of operations and financial condition.

A significant increase in the price of our raw materials could lead to higher overall costs of production, which would negatively affect our planned product margins, or make our products uncompetitive in the PV market. Our raw materials include high temperature plastics and various metals. Significant increases in the costs of these raw materials may impact our ability to compete in our target markets at a price sufficient to produce a profit.

Our intellectual property rights or our means of enforcing those rights may be inadequate to protect our business, which may result in the unauthorized use of our products or reduced sales or otherwise reduce our ability to compete. Our business and competitive position depends upon our ability to protect our intellectual property rights and proprietary technology, including any PV modules that we develop. We attempt to protect our intellectual property rights, primarily in the United States, through a combination of patent, trade secret and other intellectual property laws, as well as licensing agreements and third-party nondisclosure and assignment agreements. Because of the differences in foreign patent and other laws concerning intellectual property rights, our intellectual property rights may not receive the same degree of protection in foreign countries as they would in the United States. Our failure to obtain or maintain adequate protection of our intellectual property rights, for any reason, could have a materially adverse effect on our business, results of operations and financial condition. Further, any patents issued in connection with our efforts to develop new technology for PV modules may not be broad enough to protect all of the potential uses of our technology.

We also rely on unpatented proprietary technology. It is possible others will independently develop the same or similar technology or otherwise obtain access to our unpatented technology. To protect our trade secrets and other proprietary information, we require our employees, consultants and advisors to execute proprietary information and invention assignment agreements when they begin working for us. We cannot assure these agreements will provide meaningful protection of our trade secrets, unauthorized use, misappropriation or disclosure of trade secrets, know how or other proprietary information. Despite our efforts to protect this information, unauthorized parties may attempt to obtain and use information that we regard as proprietary. If we are unable to maintain the proprietary nature of our technologies, we could be materially adversely affected.

In addition, when others control the prosecution, maintenance and enforcement of certain important intellectual property, such as technology licensed to us, the protection and enforcement of the intellectual property rights may be outside of our control. If the entity that controls intellectual property rights that are licensed to us does not adequately protect those rights, our rights may be impaired, which may impact our ability to develop, market and commercialize our products. Further, if we breach the terms of any license agreement pursuant to which a third party licenses us intellectual property rights, our rights under that license may be affected and we may not be able to continue to use the licensed intellectual property rights, which could adversely affect our ability to develop, market and commercialize our products.

Third-party claims of intellectual property infringement may negatively impact the Company and the Company’s future financial results. The Company’s commercial success depends in part on its ability to develop, manufacture, market and sell its products and use its proprietary technology without infringing the patent rights of third parties. Numerous third-party U.S. and non-U.S. issued patents and pending applications exist in the area of the Company’s products. The Company may in the future pursue available proceedings in the U.S. and foreign patent offices to challenge the validity of patents and patent applications. In addition, or alternatively, the Company may consider whether to seek to negotiate a license of rights to technology covered by one or more of such patents and patent applications. If any patents or patent applications cover the Company’s products or technologies, the Company may not be free to manufacture or market its products as planned, absent such a license, which may not be available to the Company on commercially reasonable terms, or at all.

It is also possible that the Company has failed to identify relevant third-party patents or applications. For example, some applications may be held under government secrecy and US patent applications that will not be filed outside the United States remain confidential unless and until patents issue. Moreover, it is difficult for industry participants, including the Company, to identify all third-party patent rights that may be relevant to its product candidates and technologies because patent searching is imperfect due to differences in terminology among patents, incomplete databases and the difficulty in assessing the meaning

of patent claims. The Company may fail to identify relevant patents or patent applications or may identify pending patent applications of potential interest but incorrectly predict the likelihood that such patents may issue with claims of relevance to its technology. In addition, the Company may be unaware of one or more issued patents that would be infringed by the manufacture, sale or use of a current or future products, or the Company may incorrectly conclude that a third-party patent is invalid, unenforceable or not infringed by its activities. Additionally, pending patent applications that have been published can, subject to specified limitations, be later amended in a manner that could cover the Company's technologies, its products or the use of its products.

There have been many lawsuits and other proceedings filed by third parties involving patent and other intellectual property rights, including patent infringement lawsuits, interferences, oppositions, and reexamination, post-grant review and equivalent proceedings before the USPTO and corresponding foreign patent offices. Numerous U.S. and foreign issued patents and pending patent applications, which are owned by third parties, exist in the fields in which the Company is developing products or has existing products. As the industries the Company is involved in expand and more patents are issued, the risk increases that its product candidates may be subject to claims of infringement of the patent rights of third parties.

Parties making claims against the Company may obtain injunctive or other equitable relief, which could effectively block its ability to further develop and commercialize the Company's products. Defense of these claims, regardless of their merit, would involve substantial litigation expense and would be a substantial diversion of employee resources from the Company's business. In the event of a successful claim of infringement against the Company, the Company may have to pay substantial damages, including treble damages and attorneys' fees for willful infringement, pay royalties, redesign its infringing products or obtain one or more licenses from third parties, which may be impossible or require substantial time and monetary expenditure.

Our future success depends on retaining our Chief Executive Officer and existing management team and hiring and assimilating new key employees, and our inability to attract or retain key personnel would materially harm our business and results of operations. Our success depends on the continuing efforts and abilities of our executive officers, including Mr. Victor Lee, our President and Chief Executive Officer, our other executive officers, and key technical personnel. Our future success also will depend on our ability to attract and retain highly skilled employees, including management, technical and sales personnel. The loss of any of our key personnel, the inability to attract, retain or assimilate key personnel in the future, or delays in hiring required personnel could materially harm our business, results of operations and financial condition.

Our Chief Executive Officer is also employed by another company. Our Chief Executive Officer serves as chief financial officer of another unrelated public company. This employment may compete for our Chief Executive Officer's full attention to the Company. The Chief Executive Officer is only required to devote as much time and attention to the affairs of the Company as he deems appropriate and may engage in other business activities and/or other unrelated employment.

Our PV modules contain limited amounts of cadmium sulfide and claims of human exposure or future regulations could have a material adverse effect on our business, results of operations and financial condition. Our PV modules contain limited amounts of cadmium sulfide, which is regulated as a hazardous material due to the adverse health effects that may arise from human exposure and is banned in certain countries. We cannot assure you that human or environmental exposure to cadmium sulfide used in our PV modules will not occur. Any such exposure could result in third party claims against us, damage to our reputation and heightened regulatory scrutiny of our PV modules. Future regulation relating to the use of cadmium in various products could force us to seek regulatory exemptions or impact the manufacture and sale of our PV modules and could require us to incur unforeseen environmental related costs. The occurrence of future events such as these could limit our ability to sell and distribute our PV modules, and could have a material adverse effect on our business, results of operations and financial condition.

Environmental obligations and liabilities could have a substantial negative impact on our financial condition, cash flows and profitability. We are subject to a variety of federal, state, local and foreign laws and regulations relating to the protection of the environment, including those governing the use, handling, generation, processing, storage, transportation and disposal of, or human exposure to, hazardous and toxic materials (such as the cadmium used in our products), the discharge of pollutants into the air and water, and occupational health and safety. We are also subject to environmental laws which allow regulatory authorities to compel, or seek reimbursement for, cleanup of environmental contamination at sites now or formerly owned or operated by us and at facilities where our waste is or has been disposed. We may incur significant costs and capital expenditures in complying with these laws and regulations. In addition, violations of, or liabilities under, environmental laws or permits may result in restrictions being imposed on our operating activities or in our being subjected to substantial fines, penalties, criminal proceedings, third party property damage or personal injury claims, cleanup costs or other costs. Also, future developments such as more aggressive enforcement policies, the implementation of new, more stringent laws and regulations,

or the discovery of presently unknown environmental conditions or noncompliance may require expenditures that could have a material adverse effect on our business, results of operations and financial condition. Further, greenhouse gas emissions have increasingly become the subject of international, national, state and local attention. Although future regulations could potentially lead to an increased use of alternative energy, there can be no guarantee that such future regulations will encourage solar technology. Given our limited history of operations, it is difficult to predict future environmental expenses.

We currently anticipate having substantial international operations that will subject us to a number of risks, including potential unfavorable political, regulatory, labor and tax conditions in foreign countries. We entered into the JDA with TubeSolar, a related party (see "Item 1 Business" for additional detail), and expect to expand our operations abroad in the future and, as a result, we may be subject to the legal, political, social and regulatory requirements and economic conditions of foreign jurisdictions. Risks inherent to international operations, include, but are not limited to, the following:

- Difficulty in procuring supplies and supply contracts abroad;
- Difficulty in enforcing agreements in foreign legal systems;
- Foreign countries imposing additional withholding taxes or otherwise taxing our foreign income, imposing tariffs or adopting other restrictions on foreign trade and investment, including currency exchange controls;
- Inability to obtain, maintain or enforce intellectual property rights;
- Risk of nationalization;
- Changes in general economic and political conditions in the countries in which we may operate, including changes in the government incentives we might rely on;
- Unexpected adverse changes in foreign laws or regulatory requirements, including those with respect to environmental protection, export duties and quotas;
- Difficulty with staffing and managing widespread operations;
- Trade barriers such as export requirements, tariffs, taxes and other restrictions and expenses, which could increase the prices of our products and make us less competitive in some countries; and
- Difficulty of, and costs relating to, compliance with the different commercial and legal requirements of the international markets in which we plan to offer and sell our PV products.

Our business in foreign markets will require us to respond to rapid changes in market conditions in these countries. Our overall success as an international business depends, in part, on our ability to succeed in differing legal, regulatory, economic, social and political conditions. If we are not able to develop and implement policies and strategies that are effective in each location where we will do business, then our business, results of operations and financial condition could be materially and adversely affected.

Existing regulations and policies and changes to these regulations and policies may present technical, regulatory and economic barriers to the purchase and use of PV products, which may significantly reduce demand for our PV products. The market for electricity generation products is heavily influenced by foreign, U.S., state and local government regulations and policies concerning the electric utility industry, as well as policies promulgated by electric utilities. These regulations and policies often relate to electricity pricing and technical interconnection of customer owned electricity generation. In the United States and in a number of other countries, these regulations and policies have been modified in the past and may be modified again in the future. These regulations and policies could deter end user purchases of PV products and investment in the research and development of PV technology. For example, without a mandated regulatory exception for PV systems, utility customers are often charged interconnection or standby fees for putting distributed power generation on the electric utility grid. These fees could increase the cost to our end users of using PV systems and make them less desirable, thereby harming our business, prospects, results of operations and financial condition. In addition, electricity generated by PV systems mostly competes with expensive peak hour electricity, rather than the less expensive average price of electricity. Modifications to the peak hour pricing policies of utilities, such as to a flat rate, would require PV systems to achieve lower prices in order to compete with the price of electricity from other sources.

We anticipate that our PV modules and their use in installations will be subject to oversight and regulation in accordance with national and local ordinances relating to building codes, safety, environmental protection, utility interconnection and metering and related matters. It is difficult to track the requirements of individual states and design equipment to comply with the varying standards. Any new government regulations or utility policies pertaining to PV modules may result in significant additional expenses to us, our business partners and their customers and, as a result, could cause a significant reduction in demand for our PV modules.

We may be subject to risks related to our information technology systems, including the risk that we may be the subject of a cyber-attack and the risk that we may be in non-compliance with applicable privacy laws. Our operations depend, in part, on how well we and our vendors protect networks, equipment, information technology (IT) systems, and software against damage from a number of threats, including, but not limited to, cable cuts, damage to physical plants, natural disasters, intentional damage and destruction, fire, power loss, hacking, computer viruses, vandalism, theft, malware, ransomware and phishing attacks. Any of these and other events could result in IT system failures, delays, or increases in capital expenses. Our operations also depend on the timely maintenance, upgrade, and replacement of networks, equipment, and IT systems and software, as well as preemptive expenses to mitigate the risks of failures. The failure of IT systems or a component of IT systems could, depending on the nature of any such failure, adversely impact our reputation and results of operations.

We recently remediated material weaknesses in our internal control over financial reporting. If our remediation efforts were insufficient to address the material weaknesses, or if additional material weaknesses or significant deficiencies in our internal control over financial reporting are discovered or occur in the future, our consolidated financial statements may contain material misstatements, which could adversely affect our stock price and could negatively impact our results of operations. At December 31, 2020 and March 31, 2021, we concluded that there were material weaknesses in our internal control over financial reporting. A material weakness is a deficiency, or combination of deficiencies, in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of our annual or interim consolidated financial statements will not be prevented or detected on a timely basis. We remediated our material weakness and reported our remediation at June 30, 2021. At December 31, 2021, we concluded that the design and operation of our disclosure controls and procedures were effective. See Item 9A in Part II of this Annual Report on Form 10-K for details.

While we believe that the substantial elimination of the complexities in the Company's debt and securities accounting along with changes in internal controls over financial reporting during the period from April 1, 2021 to December 31, 2021, have materially improved the Company's internal control over financial reporting, and have effectively remediated the Company's prior material weaknesses, we cannot assure that these or other measures will fully remediate, or have fully remediated, the deficiencies or material weaknesses. We cannot assure you that we have identified all of our existing significant deficiencies and material weaknesses, or that we will not in the future have additional significant deficiencies or material weaknesses. If we are unable to remediate a material weakness, or otherwise maintain effective internal control over financial reporting, we may not be able to report our financial results accurately, prevent fraud, or file our periodic reports in a timely manner.

As long as our significant stockholders, BD 1 Investment Holding, LLC ("BD1"), Crowdex Investment, LLC ("Crowdex") and TubeSolar, maintain their current holdings, the ability of our other stockholders to influence matters requiring stockholder approval will be limited. As of March 14, 2022, BD1 beneficially owned 15,933,334 shares of our common stock, Crowdex beneficially owned 5,545,042 shares of our common stock, and TubeSolar beneficially owned 4,961,234 shares of our common stock. As of March 14, 2022, the Company had approximately 30,586,804 shares of common stock outstanding. Accordingly, BD1, Crowdex, and TubeSolar together would be able to cast approximately 86.4% of the votes entitled to vote at any meeting of stockholders of the Company (or written consent of stockholders in lieu of meeting). BD1, Crowdex, and TubeSolar, therefore, will, for the foreseeable future, have significant influence over our management and affairs, and will be able to control virtually all matters requiring stockholder approval, including the election of directors and significant corporate transactions such as mergers or sales of our Company or assets. On September 15, 2021, the Company entered into the JDA with TubeSolar. See "Item 1 Business" for additional detail.

The interests of our three largest stockholders may conflict with our interests or your interests now or in the future. Three of our stockholders, Crowdex, TubeSolar and BD1, collectively beneficially own approximately 86.4% of our Company's common stock.

Crowdex is an investment holding company 100% directly and indirectly beneficially owned by Bernd Förtsch. One of our directors, David Peterson, is the manager of Crowdex and a cousin of Michael J. Gilbreth, the Company's Chief Financial Officer.

TubeSolar is a developer of photovoltaic thin-film tubes to enable additional application opportunities in solar power generation compared to conventional solar modules. TubeSolar is a public company headquartered in Augsburg, Germany, whose shares are listed on XETRA (primary market Dusseldorf, Germany). Bernd Förtsch directly and indirectly owns a controlling interest in TubeSolar. On September 15, 2021, the Company entered into the JDA with TubeSolar. See "Item 1 Business" for additional detail.

BD1 is an investment holding company. BD1 is 100% owned by BD Vermögensverwaltung GmbH. BD Vermögensverwaltung GmbH is 100% owned by Solar Invest International SE. Johannes Kuhn and Ute Kuhn are the beneficial owners and members of the board of directors of Solar Invest International SE. BD Vermögensverwaltung GmbH and Solar Invest International SE together own approximately 18.9% of TubeSolar's shares.

Various conflicts of interest between us and our controlling stockholders could arise. The ownership interest and voting power of our controlling stockholders could create or appear to create potential conflicts of interest when such controlling stockholders are faced with decisions relating to us. We may not be able to resolve any potential conflicts, and even if we do, the resolution may be less favorable to us than if we were dealing with an unaffiliated third party.

So long as Crowdex, TubeSolar and BD1 continue to beneficially own a significant amount of our outstanding equity securities, those stockholders may be able to strongly influence or effectively control our decisions.

Risks Relating to our Securities and an Investment in our Common Stock

The price of our common stock may continue to be volatile. Our common stock is currently traded on the OTC Markets. The trading price of our common stock from time to time has fluctuated widely and may be subject to similar volatility in the future. For example, during most of the calendar year ended December 31, 2020, our common stock traded at or below $1.00 and in 2021, our common stock ranged from $10.00 to $485.00, all prices as adjusted for the reverse stock split. The trading price of our common stock in the future may be affected by a number of factors, including events described in these Risk Factors. In recent years, broad stock market indices, in general, and smaller capitalization and PV companies, in particular, have experienced substantial price fluctuations. In a volatile market, we may experience wide fluctuations in the market price of our common stock. These fluctuations may have a negative effect on the market price of our common stock regardless of our operating performance. In the past, following periods of volatility in the market price of a company's securities, securities class action litigation has often been instituted. A securities class action suit against us could result in substantial costs, potential liabilities and the diversion of management's attention and resources and could have a material adverse effect on our financial condition.

As a public company we are subject to complex legal and accounting requirements that require us to incur substantial expenses, and our financial controls and procedures may not be sufficient to ensure timely and reliable reporting of financial information, which, as a public company, could materially harm our stock price and listing on OTC Markets. As a public company, we are subject to numerous legal and accounting requirements that do not apply to private companies. The cost of compliance with many of these requirements is substantial, not only in absolute terms but, more importantly, in relation to the overall scope of the operations of a small company. Failure to comply with these requirements can have numerous adverse consequences including, but not limited to, our inability to file required periodic reports on a timely basis, loss of market confidence, delisting of our securities and/or governmental or private actions against us. We cannot assure you we will be able to comply with all of these requirements or the cost of such compliance will not prove to be a substantial competitive disadvantage vis-à-vis our privately held and larger public competitors.

The Sarbanes-Oxley Act of 2002 ("Sarbanes-Oxley") requires, among other things, that we maintain effective internal control over financial reporting and disclosure controls and procedures. In particular, we must perform system and process evaluation and testing of our internal control over financial reporting to allow management to report on the effectiveness of our internal control over financial reporting, as required by Section 404 of Sarbanes-Oxley. Our compliance with Section 404 of

Sarbanes-Oxley will require we incur substantial accounting expense and expend significant management efforts. The effectiveness of our controls and procedures may, in the future, be limited by a variety of factors, including:

- Faulty human judgment and simple errors, omissions or mistakes;
- Fraudulent action of an individual or collusion of two or more people;
- Inappropriate management override of procedures; and
- The possibility that any enhancements to controls and procedures may still not be adequate to assure timely and accurate financial information.

If we are not able to comply with the requirements of Section 404 in a timely manner, or if we or our independent registered public accounting firm, identifies deficiencies in our internal control over financial reporting that are deemed to be material weaknesses, we may be subject to OTC Markets delisting, investigations by the SEC and civil or criminal sanctions.

Our ability to successfully implement our business plan and comply with Section 404 requires us to be able to prepare timely and accurate financial statements. We expect we will need to continue to improve existing, and implement new operational, financial and accounting systems, procedures and controls to manage our business effectively.

Any delay in the implementation of, or disruption in the transition to, new or enhanced systems, procedures or controls may cause our operations to suffer, and we may be unable to conclude that our internal control over financial reporting is effective as required under Section 404 of Sarbanes-Oxley. If we are unable to complete the required Section 404 assessment as to the adequacy of our internal control over financial reporting, if we fail to maintain or implement adequate controls, our ability to obtain additional financing could be impaired. In addition, investors could lose confidence in the reliability of our internal control over financial reporting and in the accuracy of our periodic reports filed under the Securities Exchange Act of 1934, as amended ("Exchange Act"). A lack of investor confidence in the reliability and accuracy of our public reporting could cause our stock price to decline.

Our stockholders may experience significant dilution as a result of new securities that we may issue in the future. We may issue additional common stock or securities convertible into or exchangeable or exercisable for common stock, in connection with future capital raising transactions. The issuance of material amounts of common stock by us would cause our existing stockholders to experience significant dilution in their investment in our Company. Also, if we obtain additional financing involving the issuance of equity securities or securities convertible into equity securities, our existing stockholders' investment would be further diluted. Such dilution could cause the market price of our common stock to decline, which could impair our ability to raise additional financing.

Sales of a significant number of shares of our common stock in the public markets or significant short sales of our stock, or the perception that such sales could occur, could depress the market price of our common stock and impair our ability to raise capital. Sales of a substantial number of shares of our common stock or other equity-related securities in the public markets could depress the market price of our common stock. If there are significant short sales of our stock, the price decline that could result from this activity may cause the share price to decline more so, which, in turn, may cause long holders of the stock to sell their shares, thereby contributing to sales of stock in the market. Such sales also may impair our ability to raise capital through the sale of additional equity securities in the future at a time and price that our management deems acceptable, if at all. In addition, a large number of our outstanding shares are not registered under the Securities Act. If and when these shares are registered or become eligible for sale to the public market, the market price of our common stock could also decline.

Our common stock has previously been delisted from the Nasdaq Capital Market and the OTCQB Venture Market. Our inability to maintain our prior listings on Nasdaq and OTCQB may limit the liquidity of our stock, increase its volatility, and hinder our ability to raise capital. On February 25, 2016, our common stock was delisted from the Nasdaq Capital Market and began trading on the OTCQB Venture Market. On May 20, 2017 our common stock was delisted from the OTCQB Venture Market and began trading on the OTC Markets.

Upon such delisting from Nasdaq, our common stock became subject to the regulations of the SEC relating to the market for penny stocks. A penny stock is any equity security not traded on a national securities exchange that has a market price of less than $5.00 per share. The regulations applicable to penny stocks may severely affect the market liquidity for our common stock and could limit the ability of shareholders to sell securities in the secondary market. Accordingly, investors in our common stock may find it more difficult to dispose of or obtain accurate quotations as to the market value of our common stock, and there can be no assurance that our common stock will be continue to be eligible for trading or quotation on the OTC Markets or any other alternative exchanges or markets.

The delisting of our common stock from the Nasdaq Capital Market and the OTCQB Venture Market may adversely affect our ability to raise additional financing through public or private sales of equity securities, may significantly affect the ability of investors to trade our securities, and may negatively affect the value and liquidity of our common stock. Such delisting from the Nasdaq Capital Market and the OTCQB Venture Market may also have other negative results, including the potential loss of confidence by employees, the loss of institutional investor interest and fewer business development opportunities.

Some provisions of our charter documents and Delaware law may have anti-takeover effects that could discourage an acquisition of us by others, even if an acquisition would be beneficial to our stockholders, and may prevent attempts by our stockholders to replace or remove our current management. Provisions in our Certificate of Incorporation and Bylaws, each as amended, as well as provisions of Delaware law, could make it more difficult for a third party to acquire us, or for a change in the composition of our Board of Directors (our "Board") or management to occur, even if doing so would benefit our stockholders. These provisions include:

- Authorizing the issuance of "blank check" preferred stock, the terms of which may be established and shares of which may be issued without stockholder approval;

- Dividing our Board into three classes;

- Limiting the removal of directors by the stockholders; and

- Limiting the ability of stockholders to call a special meeting of stockholders.

In addition, we are subject to Section 203 of the Delaware General Corporation Law, which generally prohibits a Delaware corporation from engaging in any of a broad range of business combinations with an interested stockholder for a period of three years following the date on which the stockholder became an interested stockholder, unless such transactions are approved by our Board. This provision could have the effect of delaying or preventing a change of control, whether or not it is desired by, or beneficial to, our stockholders.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

Our principal business office and manufacturing facility is located in a leased space at 12300 Grant Street, Thornton, Colorado 80241. We have approximately 30,000 square feet of fully equipped office space and 70,000 square feet of fully equipped manufacturing space. We consider our office space adequate for our current operations.

Item 3. Legal Proceedings

Details of the Company's legal proceedings are included in Note 17 to the consolidated financial statements within Item 8 of this Annual Report on Form 10-K.

Item 4. Mine Safety Disclosures

Not applicable.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Market Information

Our stock previously traded on the Nasdaq Capital Market. On February 23, 2016 the Company received notice from Nasdaq stating that Nasdaq had determined to delist the Company's common stock. On May 20, 2017 our common stock was delisted from the OTCQB Venture Market and began trading on the OTC Markets. Our trading symbol is "ASTI."

Holders

As of December 31, 2021, the number of record holders of our common stock was 25. Because many of our shares of common stock are held by brokers and other institutions on behalf of stockholders, we are unable to estimate the total number of stockholders represented by these record holders.

Dividends

The holders of common stock are entitled to receive such dividends as may be declared by our Board of Directors. During the years ended December 31, 2021 and 2020, we did not pay any common stock dividends, and we do not expect to declare or pay any dividends in the foreseeable future. Payment of future dividends will be within the discretion of our Board of Directors and will depend on, among other factors, our retained earnings, capital requirements, and operating and financial condition.

Recent Sales of Unregistered Securities

During the year ended December 31, 2021, all sales of unregistered securities by the Company have been previously reported on a Form 8-K or Form 10-Q.

Issuer Purchases of Equity Securities

We did not repurchase any of our equity securities during the period covered by this Annual Report.

Item 6. Selected Financial Data

Smaller reporting companies are not required to provide the information required by this Item.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

The following discussion of our financial condition and results of operations should be read in conjunction with our audited financial statements and the notes to those financial statements appearing elsewhere in this Form 10-K. This discussion and analysis contain statements of a forward-looking nature relating to future events or our future financial performance. As a result of many factors, our actual results may differ materially from those anticipated in these forward-looking statements. These statements involve known and unknown risks, uncertainties and other factors that may cause our actual results, levels of activity, performance or achievements to be materially different from any future results, levels of activity, performance or achievements expressed or implied by these forward-looking statements.

Overview

We are a company formed to commercialize flexible PV modules using our proprietary technology. For the year ended December 31, 2021 we generated $607,783 of revenue. Product sales accounted for 100% of total revenue. As of December 31, 2021, we had an accumulated deficit of approximately $427,782,788.

In January 2017, Ascent was awarded a contract to supply high-voltage SuperLight thin-film CIGS PV blankets. These 50W, fully laminated, flexible blankets were manufactured using a new process that was optimized for high performance in near-space conditions at elevated temperatures, and are custom designed for easy modular integration into series and parallel configurations to achieve the desired voltage and current required for such application.

In February 2017 Ascent announced the discontinuation of our EnerPlex consumer business by disposing of the EnerPlex brand, and related intellectual properties and trademarks, to our battery product supplier, Sun Pleasure Co. Limited ("SPCL"). This transaction was completed in an effort to better allocate our resources and to continue to focus on our core strength in the high-value specialty PV market. Following the transfer, Ascent no longer produces or sells Enerplex-branded consumer products. In November 2017, Ascent introduced the next generation of our USB-based portable power systems with the XD™ series. The first product introduced was the XD-12 which, like previous products, is a folding, lightweight, easily stowable, PV system with USB power regulation. Unique to this generation of PV portable power is more PV power (12 Watts) and a 2.0 Amp smart USB output to enable the XD-12 to charge most smartphones, tablets, and USB-enabled devices as fast as a wall outlet. The enhanced smart USB circuit works with the device to be charged so that the device can determine the maximum power it is able to receive from the XD-12 and ensures the best possible charging performance directly from the sun.

Also, in 2017, for a space customer, Ascent manufactured a new micro-module, approximately 12.8mm x 50mm (0.5in x 2.0in) in size that is ideal for both laboratory-scale environmental testing, and for subsequent integration into flight experiments.

In February 2018, the Company introduced the second product in our XD series. Delivering up to 48 Watts of solar power, the durable and compact Ascent XD-48 Solar Charger is the ideal solution for charging many portable electronics and off-grid power systems. The XD-48's versatility allows it to charge both military and consumer electronics directly from the sun wherever needed. Like the XD-12, the XD-48 has a compact and portable design, and its rugged, weather-resistant construction withstands shocks, drops, damage and even minor punctures to power through the harshest conditions.

In March 2018, Ascent successfully shipped to a European based customer for a lighter-than-air, helium-filled airship project based on our newly developed ultra-light modules with substrate material than half of the thickness of our standard modules. In 2019, Ascent completed a repeat order from the same customer who had since established its airship development operation in the US. In 2020, we received a third and enlarged order from the same customer and completed the order in the second quarter of 2021. Most recently, in the 4th quarter of 2021 we received a fourth order with a targeted ship date in the 2nd quarter of 2022.

We continue to design and manufacture PV integrated portable power applications for commercial and military users. Due to the high durability enabled by the monolithic integration employed by our technology, the capability to customize modules into different form factors and the industry leading light weight and flexibility provided by our modules, we believe that the potential applications for our products are extensive.

Commercialization and Manufacturing Strategy

We manufacture our products by affixing a thin CIGS layer to a flexible, plastic substrate using a large format, roll-to-roll process that permits us to fabricate our flexible PV modules in an integrated sequential operation. We use proprietary monolithic integration techniques which enable us to form complete PV modules with little to no costly back end assembly of inter cell connections. Traditional PV manufacturers assemble PV modules by bonding or soldering discrete PV cells together. This manufacturing step typically increases manufacturing costs and at times proves detrimental to the overall yield and reliability of the finished product. By reducing or eliminating this added step using our proprietary monolithic integration techniques, we believe we can achieve cost savings in, and increase the reliability of, our PV modules. All tooling necessary for us to meet our near-term production requirements is installed in our Thornton, Colorado plant. In 2012, we further revised our strategy to focus on applications for emerging and high-value specialty PV markets, including off grid, aerospace, military and defense and consumer-oriented products.

We plan to continue the development of our current PV technology to increase module efficiency, improve our manufacturing tooling and process capabilities and reduce manufacturing costs. We also plan to continue to take advantage of research and development contracts to fund a portion of this development.

Significant Trends, Uncertainties and Challenges

We believe the significant trends, uncertainties and challenges that directly or indirectly affect our financial performance and results of operations include:

- Our ability to generate customer acceptance of and demand for our products;
- Successful ramping up of commercial production on the equipment installed;
- The substantial doubt about our ability to continue as a going concern due to our history of operating losses;
- Our products are successfully and timely certified for use in our target markets;
- Successful operating of production tools to achieve the efficiencies, throughput and yield necessary to reach our cost targets;
- The products we design are saleable at a price sufficient to generate profits;
- Our ability to raise sufficient capital to enable us to reach a level of sales sufficient to achieve profitability on terms favorable to us;
- Effective management of the planned ramp up of our domestic and international operations;
- Our ability to successfully develop and maintain strategic relationships with key partners, including OEMs, system integrators, distributors, retailers and e-commerce companies, who deal directly with end users in our target markets;
- Our ability to maintain the listing of our common stock on the OTC Markets;
- Our ability to maintain effective internal controls over financial reporting;
- Our ability to achieve projected operational performance and cost metrics;
- Our ability to enter into commercially viable licensing, joint venture, or other commercial arrangements;
- Availability of raw materials; and
- COVID-19 and the uncertainty around the continued duration and effect of the worldwide pandemic.

Basis of Presentation: The discussion and analysis of our financial condition and results of operations are based on our consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States ("US GAAP" or "GAAP"). The preparation of these consolidated financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses, and related disclosure of contingent assets and liabilities. On an ongoing basis, we evaluate our estimates based on historical experience and on various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions. We have identified the policies below as critical to our business operations and to the understanding of our financial results:

Significant Accounting Policies

Inventories: All inventories are stated at the lower of cost or net realizable value, with cost determined using the weighted average method. Inventory balances are frequently evaluated to ensure they do not exceed net realizable value. The computation for net realizable value takes into account many factors, including expected demand, product life cycle and development plans, module efficiency, quality issues, obsolescence and others. Management's judgment is required to determine reserves for obsolete or excess inventory. If actual demand and market conditions are less favorable than those estimated by management, additional inventory write downs may be required.

Impairment of Long-lived assets: We analyze our long-lived assets (property, plant and equipment) and definitive-lived intangible assets (patents) for impairment, both individually and as a group, whenever events or changes in circumstances indicate the carrying amount of the assets may not be recoverable. Events that might cause impairment would include significant current period operating or cash flow losses associated with the use of a long-lived asset or group of assets combined with a history of such losses, significant changes in the manner of use of assets and significant negative industry or economic trends. An undiscounted cash flow analysis is calculated to determine if an impairment exists. If an impairment is determined to exist, any related loss is calculated using the difference between the fair value and the carrying value of the assets.

Convertible Preferred Stock: The Company evaluates its preferred stock instruments under FASB ASC 480, *"Distinguishing Liabilities from Equity"* to determine the classification, and thereby the accounting treatment, of the instruments. Please refer to Notes 13 and 14 for further discussion on the classification of each instrument.

Derivatives: The Company evaluates its financial instruments under FASB ASC 815, *"Derivatives and Hedging"* to determine whether the instruments contain an embedded derivative. When an embedded derivative is present, the instrument is evaluated for a fair value adjustment upon issuance and at the end of every period. Any adjustments to fair value are treated as gains and losses in fair values of derivatives and are recorded on the Statement of Operations. Please refer to Notes 10 and 11 for further discussion on the embedded derivatives of each instrument.

Paycheck Protection Program Loan: The Company has elected to account for the forgivable loan received under the Paycheck Protection Program (“PPP”) provisions of the Coronavirus Aid, Relief, and Economic Security (“CARES”) Act as a debt instrument and to accrue interest on the outstanding loan balance. Additional interest at a market rate (due to the stated interest rate of the PPP loan being below market) is not imputed, as the transactions where interest rates prescribed by governmental agencies are excluded from the scope of accounting guidance on imputing interest. The proceeds from the loan will remain recorded as a liability until either (1) the loan is, in part of wholly, forgiven and the Company has been legally released or (2) the Company repays the loan to the lender. On September 4, 2021, the Company received notification from Vectra that the Small Business Administration has forgiven the PPP loan and the liability was recognized as other income.

Revenue Recognition:

Product revenue. We recognize revenue for the sale of PV modules and other equipment sales at a point in time following the transfer of control of such products to the customer, which typically occurs upon shipment or delivery depending on the terms of the underlying contracts. For module and other equipment sales contracts that contain multiple performance obligations, we allocate the transaction price to each performance obligation identified in the contract based on relative standalone selling prices, or estimates of such prices, and recognize the related revenue as control of each individual product is transferred to the customer.

Milestone revenue. Each milestone arrangement is a separate performance obligation. The transaction price is estimated using the most likely amount method and revenue is recognized as the performance obligation is satisfied through achieving manufacturing or cost targets and engineering targets.

Government contract revenue. Revenue from government research and development contracts is generated under terms that are cost plus fee or firm fixed price. We generally recognize this revenue over time using cost-based input methods, which recognize revenue and gross profit as work is performed based on the relationship between actual costs incurred compared to the total estimated costs of the contract. In applying cost-based input methods of revenue recognition, we use the actual costs incurred relative to the total estimated costs to determine our progress towards contract completion and to calculate the corresponding amount of revenue to recognize.

Cost based input methods of revenue recognition are considered a faithful depiction of our efforts to satisfy long-term government research and development contracts and therefore reflect the performance obligations under such contracts. Costs incurred that do not contribute to satisfying our performance obligations are excluded from our input methods of revenue recognition as the amounts are not reflective of our transferring control under the contract. Costs incurred towards contract completion may include direct costs plus allowable indirect costs and an allocable portion of the fixed fee. If actual and estimated costs to complete a contract indicate a loss, provision is made currently for the loss anticipated on the contract.

Research, Development and Manufacturing Operations Costs: Research, development and manufacturing operations expenses include: 1) technology development costs, which include expenses incurred in researching new technology, improving existing technology and performing federal government research and development contracts, 2) product development costs, which include expenses incurred in developing new products and lowering product design costs, and 3) pre-production and production costs, which include engineering efforts to improve production processes, material yields and equipment utilization, and manufacturing efforts to produce saleable product. Research, development and manufacturing operations costs are expensed as incurred, with the exception of costs related to inventoried raw materials, work-in-process and finished goods, which are expensed as Cost of revenue as products are sold.

Recently Issued Accounting Standards

In August 2020, the FASB issued ASU No. 2020-06, *Debt - Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging Contracts in Entity s Own Equity (Subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity s Own Equity*. ASU 2020-06 will simplify the accounting for convertible instruments by reducing the number of accounting models for convertible debt instruments and convertible preferred stock. Limiting the accounting models results in fewer embedded conversion features being separately recognized from the host contract as compared with current GAAP. Convertible instruments that continue to be subject to separation models are (1) those with embedded conversion features that are not clearly and closely related to the host contract, that meet the definition of a derivative, and that do not qualify for a scope exception from derivative accounting and (2) convertible debt instruments issued with substantial premiums for which the premiums are recorded as paid-in capital. ASU 2020-06 also amends the guidance for the derivatives scope exception for contracts in an entity's own equity to reduce form-over-substance-based accounting conclusions. ASU 2020-06 will be effective for public companies that are smaller reporting companies for fiscal years beginning after December 15, 2023, including interim periods within those fiscal years. Early adoption is permitted, but no earlier than fiscal years beginning after December 15, 2020, including interim periods within those fiscal years. Management has not yet evaluated the impact that the adoption of ASU 2020-06 will have on the Company's consolidated financial statement presentation or disclosures.

Other new pronouncements issued but not effective as of December 31, 2021 are not expected to have a material impact on the Company's consolidated financial statements.

Results of Operations

Comparison of the Years Ended December 31, 2021 and 2020

	Year Ended December 31,		
	2021	**2020**	**$ Change**
Revenues			
Product Revenue	607,783	66,613	541,170
Total Revenues	607,783	66,613	541,170
Costs and Expenses			
Cost of Revenue	1,902,414	174,588	1,727,826
Research, development and manufacturing operations	4,140,319	1,165,193	2,975,126
SG&A	3,297,982	1,029,720	2,268,262
Depreciation	57,314	151,658	(94,344)
Total Costs and Expenses	9,398,029	2,521,159	6,876,870
Loss From Operations	(8,790,246)	(2,454,546)	(6,335,700)
Other Income/(Expense)			
Other Income/(Expense), net	(169,423)	3,002,170	(3,171,593)
Interest Expense	(1,088,327)	(3,507,533)	2,419,206
Change in fair value of derivatives and gain on extinguishment of liabilities	4,047,993	4,577,353	(529,360)
Total Other Income	2,790,243	4,071,990	(1,281,747)
Net Income/(Loss)	(6,000,003)	1,617,444	(7,617,447)

Revenues. Our revenues increased by $541,170, or 812%, for the year ended December 31, 2021 when compared to the same period in 2020. The increase in sales is due primarily increased operations in the current year. During 2020, the Company was in a dormant status for the most part of the year as the focus in 2020 was to recapitalize and restructure the Company's balance sheet. The intensification of the COVID-19 pandemic since March 2020 also significantly impacted our restructuring effort, thereby delaying our ability to restart our operations in a timely manner.

Cost of revenues. Cost of revenues is comprised primarily of repair and maintenance, direct labor and overhead expenses. Our cost of revenues increased by $1,727,826, or 990%, for the year ended December 31, 2021 when compared to the same period in 2020. The increase in cost of revenues is mainly due to the increase in repair and maintenance, materials, and labor costs as a result of increased production and restarting equipment for the year ended December 31, 2021 compared to 2020. Management believes our factory is currently significantly under-utilized, and a substantial increase in revenue would result in marginal increases to direct labor and overhead included in the cost of revenues. As such, management's focus going forward is to improve gross margin through increased sales and improved utilization of our factory.

Research, development and manufacturing operations. Research, development and manufacturing operations costs include costs incurred for product development, pre-production and production activities in our manufacturing facility. Research, development and manufacturing operations costs also include costs related to technology development and governmental contracts. Research, development and manufacturing operations costs increased by $2,975,126 or 255%, for the year ended December 31, 2021 when compared to the same period in 2020. The increase in cost is due primarily to increased operations in the current year as compared to the Company's dormant status in the prior year.

Selling, general and administrative. Selling, general and administrative expenses increased by $2,268,262, or 220%, for the year ended December 31, 2021 when compared to the same period in 2020. The increase in costs is due primarily to an increased level of operations in the current period as compared to the Company's dormant status in 2020.

Other Income. Other income decreased by $1,281,747 or 31%, for the year ended December 31, 2021 when compared to the same period in 2020. In 2020, the Company recognized approximately $3 million gain on the sale of our facility with no similar transaction in the current year. This is partially offset by the decrease in interest expense in the current year as the Company restructured its debt in late 2020.

Net Income/(Loss). Our Net Loss was $6,000,003 for the year ended December 31, 2021, compared to Net Income of $1,617,444 for the year ended December 31, 2020, a reduction of $7,617,447. The reduction is due to the reasons described above.

Liquidity and Capital Resources

The Company has continued limited PV production at its manufacturing facility. The Company does not expect that sales revenue and cash flows will be sufficient to support operations and cash requirements until it has fully implemented its product strategy. During the year ended December 31, 2021 the Company used $9,404,443 in cash for operations.

Additional projected product revenues are not anticipated to result in a positive cash flow position for the year 2022 overall and, as of December 31, 2021, the Company has working capital of $3,799,806; however additional financing will be required for us to reach a level of sufficient sales to achieve profitability.

The Company continues to accelerate sales and marketing efforts related to its military solar products and specialty PV application strategies through expansion of its sales and distribution channels. The Company continues activities to secure additional financing through strategic or financial investors, but there is no assurance the Company will be able to raise additional capital on acceptable terms or at all. If the Company's revenues do not increase rapidly, and/or additional financing is not obtained, the Company will be required to significantly curtail operations to reduce costs and/or sell assets. Such actions would likely have an adverse impact on the Company's future operations.

As a result of the Company’s recurring losses from operations, and the need for additional financing to fund its operating and capital requirements, there is uncertainty regarding the Company’s ability to maintain liquidity sufficient to operate its business effectively, which raises substantial doubt as to the Company’s ability to continue as a going concern. The Company has scaled down its operations, due to cash flow issues, and does not expect to ramp up until significant financing is obtained.

Management cannot provide any assurances that the Company will be successful in accomplishing any of its plans. These consolidated financial statements do not include any adjustments that might be necessary should the Company be unable to continue as a going concern.

Statements of Cash Flows Comparison of the Years Ended December 31, 2021 and 2020

For the year ended December 31, 2021, our cash used in operations was $9,404,443 compared to $2,884,919 for the year ended December 31, 2020, an increase of $6,519,524. The increase is primarily the result of scaling up operations during 2021 as compared to the Company’s dormant status for most of 2020. For the year ended December 31, 2021, cash used in investing activities was $301,522 compared to cash provided by investing activities of $254,444 for the year ended December 31, 2020. This change was primarily the result of a decrease in proceeds from the sale of assets. During the year ended December 31, 2021, negative operating cash flows of $9,404,443 were primarily funded through $15,500,000 in proceeds from issuances of preferred and common stock.

Off Balance Sheet Transactions

As of December 31, 2021, we did not have any off-balance sheet arrangements as defined in Item 303(a)(4)(ii) of Regulation S-K.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Foreign Currency Exchange Risk

We hold no significant funds and have no future obligations denominated in foreign currencies as of December 31, 2021.

Although our reporting currency is the U.S. Dollar, we may conduct business and incur costs in the local currencies of other countries in which we may operate, make sales and buy materials. As a result, we are subject to currency translation risk. Further, changes in exchange rates between foreign currencies and the U.S. Dollar could affect our future net sales and cost of sales and could result in exchange losses.

Interest Rate Risk

Our exposure to market risks for changes in interest rates relates primarily to our cash equivalents and investment portfolio. As of December 31, 2021, our cash equivalents consisted only of operating accounts held with financial institutions. From time to time, we hold restricted funds, money market funds, investments in U.S. government securities and high-quality corporate securities. The primary objective of our investment activities is to preserve principal and provide liquidity on demand, while at the same time maximizing the income we receive from our investments without significantly increasing risk. The direct risk to us associated with fluctuating interest rates is limited to our investment portfolio, and we do not believe a change in interest rates will have a significant impact on our financial position, results of operations, or cash flows.

Item 8. Financial Statements and Supplementary Data

The Financial Statements and Supplementary Data required by this item are included in Part IV, Item 15(a)(1) and are presented beginning on Page F-1.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures designed to ensure that information required to be disclosed in our reports filed or submitted under the Securities Exchange Act of 1934, as amended (the "Exchange Act") is recorded, processed, summarized and reported within the time periods specified in Securities and Exchange Commission rules and forms. Our disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed in our reports filed under the Exchange Act is accumulated and communicated to management as appropriate to allow timely decisions regarding required disclosures. Our management conducted an evaluation required by Rules 13a-15 and 15d-15 under the Exchange Act of the effectiveness of our disclosure controls and procedures as defined in Rules 13a-15 and 15d-15 under the Exchange Act as of December 31, 2021. Based on this evaluation, our management concluded the design and operation of our disclosure controls and procedures were effective as of December 31, 2021.

Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. Our system of internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles in the United States of America and includes those policies and procedures that:

- pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of our assets;
- provide reasonable assurance transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and our receipts and expenditures are being made only in accordance with authorizations of our management and directors; and
- provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on our financial statements.

Under the supervision of the Audit Committee of the Board of Directors and with the participation of our management, including our Chief Executive Officer, we engaged an independent third party firm and conducted an evaluation of the effectiveness of our internal control over financial reporting using the criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on this evaluation, our management concluded our internal control over financial reporting were effective as of December 31, 2021. Our management reviewed the results of its assessment with the Audit Committee.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

A material weakness is a deficiency, or combination of deficiencies, in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of the Company's annual or interim financial statements will not be prevented or detected on a timely basis.

Material Weakness Identified in 2020

As disclosed in Item 9A, "Controls and Procedures," of the Company's Annual Report on Form 10-K for the year ended December 31, 2020, management concluded that a material weakness existed in its internal control over financial reporting as it related to the lack of accounting resourcing with technical expertise to ensure that all Company transactions were accounted for in accordance with US GAAP. Specifically, the Company's controls to ensure that appropriate accounting for the Company's inventory and cost of revenue and the Company's accounting for complex debt and equity securities transactions were not designed at a sufficient level of precision to mitigate the risk of material misstatement.

Remediation of Material Weaknesses in Internal Control over Financial Reporting

The Company's financial challenges faced in 2020 subsided as cash flows improved during the year ended December 31, 2020 and began to bring the Company into operating status. The Company executed the following steps to remediate the aforementioned material weakness in its internal controls over financial reporting:

- The Company hired a new Chief Financial Officer during the fourth quarter of 2020 and a new Controller with a strong financial statement audit and technical accounting background during the second quarter of 2021. The Company's Controller, acting in coordination with the Company's CFO, were both highly involved in implementing and monitoring internal controls over the Company's quarterly financial reporting including the oversight of controls specifically related to the Company's inventory activities, cost of revenue allocations, and accounting for the Company's debt and equity securities, supervising the accounting staff involved in the Company's quarterly financial reporting, and identifying, monitoring, and resolving accounting issues as raised throughout the Company's ongoing activities.
- The Company significantly reduced the complexity of the debt structure through consolidation and simplifying of terms thereby lowering the associated administration and cost burden.
- The Company engaged an external resource with the technical expertise to assist in documenting and testing internal controls under Section 302 and 404 of the Sarbanes Oxley Act of 2002.

The substantial elimination of the complexities in the Company's debt and securities accounting along with the above changes in internal controls over financial reporting during the year ended December 31, 2021, have materially improved the Company's internal control over financial reporting, and have effectively remediated the Company's prior material weaknesses as previously disclosed above.

Changes in Internal Control Over Financial Reporting

Except for the identification and mitigation of the material weaknesses noted above, there were no other changes in internal control over financial reporting during the year ended December 31, 2021 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

None.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections

Not applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

EXECUTIVE OFFICERS AND DIRECTORS

Our executive officers, continuing directors and director nominees, their ages and positions with us as of March 14, 2022, are as follows:

Name	Age	Position
Victor Lee	54	President and Chief Executive Officer, Director
Michael J. Gilbreth	45	Chief Financial Officer
Amit Kumar, Ph.D.	57	Chairman of the Board, Director
David Peterson	52	Director
Kim J. Huntley	67	Director
Will A. Clarke	54	Director

Victor Lee (Lee Kong Hian) has been the President and Chief Executive Officer of Ascent Solar Technologies Inc. since February 1, 2012 and a member of our Board since November 2011. Mr. Lee joined HF Foods Group Inc. (NASDAQ:HFFG) as Vice President, Chief Corporate Finance and Strategy Officer in December 2019 and was promoted to Executive Vice President and Chief Financial Officer in May 2020. He brings more than 25 years of experience in strategic planning, sales & marketing, corporate finance, real estate finance and investment management, and corporate advisory services at leading worldwide financial institutions. Mr. Lee began his career at Citibank N.A., in 1993, handling small-and medium-sized corporate finance and progressed to a vice president position in the International Personal Banking Division. In 1999 he moved to Deutsche Bank AG as Vice President and in 2004 was promoted to managing director Singapore Market Head in the Private Wealth Management Division, where he was responsible for management of approximately $1 Billion in assets. From 2007 until 2009, he was with Morgan Stanley Private Wealth Management, most recently as executive director and head of Singapore/Malaysia markets. Mr. Lee holds a Bachelor's degree in Accounting from the University of Wisconsin and a Master's in Wealth Management from the Singapore Management University. We believe Mr. Lee is well-qualified to serve as a director due to his business experience and his comprehensive knowledge of the Company.

Michael J. Gilbreth has been Chief Financial Officer of Ascent Solar Technologies Inc. since October 2020. Mr. Gilbreth is a financial executive with more than 15 years of experience in accounting and business management, consumer packaged goods, e-commerce, and financial consulting. In April 2020, Mr. Gilbreth formed a financial consulting company, PVMG Advisors, Inc., which provides financial and business consulting services. While at PVMG, Mr. Gilbreth provided consulting services to Crowdex Investment, LLC in connection with the Company’s recent restructuring and recapitalization process. Previously, from 2015 to January 2020, Mr. Gilbreth was Vice President of Finance at Candy Club Holding Limited (ASX: CLB) headquartered in Los Angeles, California. Candy Club is a leading specialty market confectionery company which operates in the business-to-business (B2B) and business-to-customer (B2C) segments in the United States. In this lead finance role at Candy Club, Mr. Gilbreth supported the company’s capital raising activities, including a successful initial public offering on the Australian Stock Exchange (ASX) in February 2019. From 2013 to 2015, Mr. Gilbreth operated Gilbreth Consulting, which provides financial and operational management consulting services, and strategic and operational planning services. From 2010 to 2013, Mr. Gilbreth was VP/Finance at MediaTrust, a performance marketing company based in southern California. From 2005 to 2010, Mr. Gilbreth was a business manager at Duban Sattler and Associates LLP, a boutique tax accounting and business management firm based in southern California which represents high net worth individuals. Mr. Gilbreth holds a Bachelor’s degree in Business Administration from California State University, Chico. Mr. Gilbreth and David Peterson are cousins.

Amit Kumar, Ph.D. has served on our Board since June 2007 and as Chairman since January 2011. Dr. Kumar is currently Chairman, President and CEO of Anixa Biosciences (NASDAQ:ANIX), a publicly held biotechnology company. From December 2010 to June 2015, Dr. Kumar was President and CEO of Geo Fossil Fuels, a privately held energy company. From September 2001 until June 30, 2010, Dr. Kumar was President and CEO of CombiMatrix Corporation (NASDAQ: CBMX). Previously, Dr. Kumar was Vice President of Life Sciences of Acacia Research Corp (NASDAQ: ACTG). From January 1999 to February 2000, Dr. Kumar was the founding President and Chief Executive Officer of Signature BioSciences, Inc., a life science company developing technology for advanced research in genomics, proteomics and drug discovery. From January 1998 to December 1999, Dr. Kumar was an Entrepreneur in Residence with Oak Investment Partners, a venture capital firm. From October 1996 to January 1998, Dr. Kumar was a Senior Manager at IDEXX Laboratories, Inc., a biotechnology company.

From October 1993 to September 1996, Dr. Kumar was Head of Research & Development for Idetek Corporation, which was later acquired by IDEXX Laboratories, Inc. Dr. Kumar received his B.S. degree in chemistry from Occidental College. After joint studies at Stanford University and the California Institute of Technology, he received his Ph.D. in Chemistry from Caltech in 1991. He also completed a post-doctoral fellowship at Harvard University in 1993. Dr. Kumar has authored and co-authored over 40 peer-reviewed publications and holds a dozen patents. Dr. Kumar brings significant leadership experience as well as experience in photovoltaic research including work on energy conversion using cells made from silicon (single crystal, polycrystalline, and amorphous), gallium arsenide, indium phosphide, metal oxides and other materials. Dr. Kumar is a member of the board of directors of Actym Therapeutics, a private biotechnology company. We believe Mr. Kumar is well-qualified to serve as a director due to his experience as a director and executive of several public and private companies.

Kim J. Huntley has served on our Board since June 2010. Mr. Huntley served in the Defense Logistics Agency (DLA) of the U.S. Department of Defense (DOD) for more than 32 years in positions of increasing responsibility. Most recently, from July 2008 until his retirement in January 2010, Mr. Huntley served as Director of the Defense Energy Support Center (DESC) in Fort Belvoir, Virginia. The DESC operates as part of the DLA and is responsible for providing energy solutions to the DOD and federal civilian agencies. As Director of the DESC, Mr. Huntley was the principal executive officer in charge of approximately 1,100 employees worldwide and over $25 billion in annual appropriations involving energy infrastructure and products. From March 2006 and immediately prior to becoming Director of the DESC, Mr. Huntley served in leadership roles involving supply chain management, including Deputy Commander for the Defense Supply Center in Richmond, Virginia and Columbus, Ohio, and as Executive Director of Customer Support and Readiness. From December 2003 to March 2006, Mr. Huntley served as Chief of the Customer Support Office in Fort Belvoir, Virginia. Mr. Huntley chaired the Inter Agency Working Group for Alternative Fuels and Renewable Energy from January 2009 to January 2010. The Group included senior energy representatives from DOD, DOE, EPA, and other major Federal Agencies. Mr. Huntley holds a B.A. degree in Economics from Golden Gate University and attended post-graduate courses in economics at California State University, Hayward. Mr. Huntley brings extensive supply chain, budget and defense industry experience to our Board. We believe Mr. Huntley is well-qualified to serve as a director due to his extensive experience in the public sector.

David Peterson has served on our Board since December 2020. Mr. Peterson has over 25 years of business management experience, including 8 years as a private equity investor, 5 years as a manager at an engineering consulting firm, and over 20 years of board experience. From April 2015 to present, Mr. Peterson has worked for EPD Consultants, Inc., a privately held engineering firm headquartered in Carson, California, where he serves as Senior Project Manager. From 2010 to 2015, Mr. Peterson was President and Co-Founder of Great Circle Industries, Inc., a water recycling company in southern California. His past experience includes being a board member at AIR-serv, LLC, a tire inflation vending machine manufacturer, where Mr. Peterson managed the acquisition process, including obtaining expansion of the company's credit facility, as that company completed 10 acquisitions and grew from $10 million of EBITDA to $20 million of EBITDA in the year prior to its sale for $151 million to WindPoint Partners. Mr. Peterson has an MBA degree from the Marshall School of Business at the University of Southern California, and a B.A. from the University of California, Santa Cruz. Mr. Peterson is currently the Manager of Crowdex Investment, LLC, a significant equity investor in the Company. Mr. Peterson and Michael J. Gilbreth are cousins. We believe Mr. Peterson is well-qualified to serve as a director due to his extensive management and board experience.

Will A. Clarke has served on our Board since December 2020. Since 2020, Mr. Clarke has been the Founder and President of Clarke Growth and Sustainment Strategies, an advisory firm specializing in guiding startup and early stage companies' business expansion. From 2018 to 2020, Mr. Clarke was Head of Global Supply Chain Management and Technical Procurement for Atlas Airlines Worldwide Holdings, Inc. (NASDAQ: AAWW), a leading global provider of outsourced aircraft and aviation operating services headquartered in Purchase, NY. From 2015 to 2017, Mr. Clarke was Director of Procurement at Best Buy Co., Inc. (NYSE: BBY), a provider of technology products, services and solutions to its customers through over 1,400 retail stores, and also through its websites and mobile applications. Best Buy is headquartered in Richfield, MN and has operations in the United States, Canada and Mexico. Prior to launching his second career in 2015, Mr. Clarke served 25 years as an Officer in the U.S. Navy, where he completed 10 deployments in support of war and peacetime operations on two aircraft carriers, one submarine, one warship and one on land. Mr. Clarke served in a number of senior finance, supply chain, procurement and logistics assignments across East Africa, Asia/Pacific, and the United States while serving in the U.S. Navy, where he attained the rank of Captain (O6). Mr. Clarke earned a B.S. in Mathematics from the U.S. Naval Academy, an M.S. in Finance and Contracts Management from the Naval Postgraduate School and has completed the Executive Development Program at Wharton Business School and the Corporate Governance Program at Columbia Business School. We believe Mr. Clarke is well-qualified to serve as a director due to his knowledge and business experience.

Section 16(a) Beneficial Ownership Reporting Compliance

Section 16(a) of the Exchange Act requires our directors, executive officers, and persons holding more than 10% of our common stock to report their initial ownership of the common stock and other equity securities and any changes in that ownership in reports that must be filed with the SEC. The SEC has designated specific deadlines for these reports, and we must identify in our Annual Report on Form 10-K those persons who did not file these reports when due.

Based solely on a review of reports furnished to us, or written representations from reporting persons, we believe all directors, executive officers, and 10% owners timely filed all reports regarding transactions in our securities required to be filed in 2020 or 2021 by Section 16(a) under the Exchange Act, except that (i) Mr. Gilbreth and Crowdex each filed a late Form 3 in 2020, (ii) TubeSolar filed a late Form 3 in 2021, and (iii) BD1 and TubeSolar each filed one late Form 4 in 2021.

CORPORATE GOVERNANCE

Overview

Our Bylaws provide that the size of our Board of Directors is to be determined from time to time by resolution of the Board of Directors, but shall consist of at least two and no more than nine members. Our Board of Directors currently consists of five members. The Board has determined that the following directors are "independent" as required by the listing standards of the OTC Markets and by our corporate governance guidelines: Dr. Kumar, Mr. Huntley and Mr. Clarke.

Our Certificate of Incorporation provides that the Board of Directors will be divided into three classes. Our Class 1 director is Dr. Amit Kumar. Our Class 2 directors are Kim J. Huntley and Will A. Clarke. Our Class 3 directors are David Peterson and Victor Lee.

Board Leadership Structure and Role in Risk Oversight

We currently separate the roles of Chairman of the Board and Chief Executive Officer. We believe that Dr. Kumar possesses the strategic, technical and industry knowledge and expertise to serve as our Chairman. As President and Chief Executive Officer, Mr. Lee is responsible for day-to-day oversight of our operations and personnel. Notwithstanding the foregoing, our Board does not have a formal policy regarding separation of the Chairman and Chief Executive Officer roles, and the Board may in the future decide to implement such a policy if it deems it in the best interests of us and our stockholders. The Board does not have a lead independent director.

Risk is inherent with every business, and how well a business manages risk can ultimately determine its success. We face a number of risks, including credit risk, interest rate risk, liquidity risk, operational risk, strategic risk and reputation risk. Management is responsible for the day-to-day management of risks we face, while the Board, as a whole and through its committees, has responsibility for the oversight of risk management. In its risk oversight role, the Board of Directors has the responsibility to satisfy itself that the risk management processes designed and implemented by management are adequate and functioning as designed. To do this, the Chairman of the Board meets regularly with management to discuss strategy and the risks we face. In addition, the Audit Committee regularly monitors our enterprise risk, including financial risks, through reports from management. Senior management attends the Board meetings and is available to address any questions or concerns raised by the Board on risk management and any other matters. The Chairman of the Board and independent members of the Board work together to provide strong, independent oversight of our management and affairs through the Board's standing committees and, when necessary, executive sessions of the independent directors.

Committees of the Board of Directors

Our Board has three standing committees: an Audit Committee, a Compensation Committee, and a Nominating and Governance Committee. Each committee operates pursuant to a charter. The charters of the Audit Committee, the Compensation Committee, and the Nominating and Governance Committee can be found on our website www.ascentsolar.com.

Audit Committee. Our Audit Committee oversees our accounting and financial reporting processes, internal systems of accounting and financial controls, relationships with independent auditors, and audits of financial statements. Specific responsibilities include the following:

- selecting, hiring and terminating our independent auditors;
- evaluating the qualifications, independence and performance of our independent auditors;
- approving the audit and non-audit services to be performed by our independent auditors;
- reviewing the design, implementation, adequacy and effectiveness of our internal controls and critical accounting policies;
- reviewing and monitoring the enterprise risk management process;
- overseeing and monitoring the integrity of our financial statements and our compliance with legal and regulatory requirements as they relate to financial statements or accounting matters;

- reviewing, with management and our independent auditors, any earnings announcements and other public announcements regarding our results of operations; and

- preparing the report that the SEC requires in our annual proxy statement.

Our Audit Committee is comprised of Mr. Huntley, Dr. Kumar and Mr. Clarke. Mr. Huntley serves as Chairman of the Audit Committee. The Board has determined that all members of the Audit Committee are independent under the rules of the OTC Markets, and that Mr. Huntley qualifies as an “audit committee financial expert,” as defined by the rules of the SEC.

Compensation Committee. Our Compensation Committee assists our Board in determining the development plans and compensation of our officers, directors and employees. Specific responsibilities include the following:

- approving the compensation and benefits of our executive officers;

- reviewing the performance objectives and actual performance of our officers; and

- administering our stock option and other equity compensation plans.

The Compensation Committee reviews all components of compensation including base salary, bonus, equity compensation, benefits and other perquisites. In addition to reviewing competitive market values, the Compensation Committee also examines the total compensation mix, pay-for-performance relationship and how all elements, in the aggregate, comprise the executives’ total compensation package. The CEO makes recommendations to the Compensation Committee from time to time regarding the appropriate mix and level of compensation for other officers. Those recommendations consider the objectives of our compensation philosophy and the range of compensation programs authorized by the Compensation Committee. The Compensation Committee may determine director compensation by reviewing peer group data. Although the Compensation Committee has the authority to retain outside third parties, it does not currently utilize any outside consultants. The Compensation Committee may delegate certain of its responsibilities, as it deems appropriate, to other committees or officers.

Our Compensation Committee is comprised of Mr. Clarke, Mr. Huntley and Dr. Kumar. Mr. Clarke serves as Chairman of the Compensation Committee.

Our Board has determined that all members of the Compensation Committee are independent under the rules of the Nasdaq Capital Market and OTC Markets.

Nominating and Governance Committee. Our Nominating and Governance Committee assists our Board by identifying and recommending individuals qualified to become members of our Board, reviewing correspondence from our stockholders, and establishing, evaluating and overseeing our corporate governance guidelines. Specific responsibilities include the following:

- evaluating the composition, size and governance of our Board and its committees and making recommendations regarding future planning and the appointment of directors to our committees;

- establishing a policy for considering stockholder nominees for election to our Board; and

- evaluating and recommending candidates for election to our Board.

Our Nominating and Governance Committee is comprised of Dr. Kumar, Mr. Huntley, and Mr. Clarke. Dr. Kumar serves as Chairman of our Nominating and Governance Committee. Our Board has determined that all members of the Nominating and Governance Committee are independent under the rules of Nasdaq Capital Market and OTC Markets.

When considering potential director candidates for nomination or election, the following characteristics are considered in accordance with our Nominating and Governance Committee Charter:

- high standard of personal and professional ethics, integrity and values;

- training, experience and ability at making and overseeing policy in business, government and/or education sectors;

- willingness and ability to keep an open mind when considering matters affecting interests of us and our constituents;

- willingness and ability to devote the time and effort required to effectively fulfill the duties and responsibilities related to the Board and its committees;
- willingness and ability to serve on the Board for multiple terms, if nominated and elected, to enable development of a deeper understanding of our business affairs;
- willingness not to engage in activities or interests that may create a conflict of interest with a director's responsibilities and duties to us and our constituents; and
- willingness to act in the best interests of us and our constituents, and objectively assess Board, committee and management performances.

In addition, in order to maintain an effective mix of skills and backgrounds among the members of our Board, the following characteristics also may be considered when filling vacancies or identifying candidates:

- diversity (e.g., age, geography, professional, other);
- professional experience;
- industry knowledge (e.g., relevant industry or trade association participation);
- skills and expertise (e.g., accounting or financial);
- leadership qualities;
- public company board and committee experience;
- non-business-related activities and experience (e.g., academic, civic, public interest);
- continuity (including succession planning);
- size of the Board;
- number and type of committees, and committee sizes; and
- legal and other applicable requirements and recommendations, and other corporate governance-related guidance regarding Board and committee composition.

The Nominating and Governance Committee will consider candidates recommended by stockholders who follow the nomination procedures in our bylaws. The Nominating and Governance Committee does not have a formal policy with respect to diversity; however, as noted above, the Board and the Nominating and Governance Committee believe that it is essential that Board members represent diverse viewpoints.

Number of Meetings

The Board held a total of six meetings in 2021. Our Audit Committee held ten meetings, our Compensation Committee held five meetings, and our Nominating and Governance Committee held four meetings in 2021. Each director attended at least 75% of the aggregate of the total number of meetings of the Board and the Board committees on which he served.

Board Member Attendance at Annual Stockholder Meetings

Although we do not have a formal policy regarding director attendance at annual stockholder meetings, directors are encouraged to attend these annual meetings absent extenuating circumstances. We did not hold our annual meeting during 2021 or 2020.

Stockholder Nominations

In accordance with our Bylaws, a stockholder wishing to nominate a director for election at an annual or special meeting of stockholders must timely submit a written proposal of nomination to us at our executive offices. To be timely, a written proposal of nomination for an annual meeting of stockholders must be received at least 90 calendar days but no more than 120 calendar days before the first anniversary of the date on which we held our annual meeting of stockholders in the immediately preceding year; *provided*, *however*, that in the event that the date of the annual meeting is advanced or delayed more than 30 calendar days from the anniversary of the annual meeting of stockholders in the immediately preceding year, the written proposal must be received: (i) at least 90 calendar days but no more than 120 calendar days prior to the date of the annual meeting; or (ii) no more than 10 days after the date we first publicly announce the date of the annual meeting. A written proposal of nomination for a special meeting of stockholders must be received no earlier than 120 calendar days prior to the date of the special meeting nor any later than the later of: (i) 90 calendar days prior to the date of the special meeting; and (ii) 10 days after the date we first publicly announce the date of the special meeting.

Each written proposal for a nominee must contain: (i) the name, age, business address and telephone number, and residence address and telephone number of the nominee; (ii) the current principal occupation or employment of each nominee, and the principal occupation or employment of each nominee for the prior ten (10) years; (iii) a complete list of companies, whether publicly traded or privately held, on which the nominee serves (or, during any of the prior ten (10) years, has served) as a member of the board of directors; (iv) the number of shares of our common stock that are owned of record and beneficially by each nominee; (v) a statement whether the nominee, if elected, intends to tender, promptly following such person's failure to receive the required vote for election or reelection at the next meeting at which the nominee would face election or reelection, an irrevocable resignation effective upon acceptance of such resignation by the Board; (vi) a completed and signed questionnaire, representation and agreement relating to voting agreements or commitments to which the nominee is a party; (vii) other information concerning the nominee that would be required in a proxy statement soliciting the nominee's election; and (viii) information about, and representations from, the stockholder making the nomination.

A stockholder interested in submitting a nominee for election to the Board of Directors should refer to our Bylaws for additional requirements. Upon receipt of a written proposal of nomination meeting these requirements, the Nominating and Governance Committee of the Board will evaluate the nominee in accordance with its charter and the characteristics listed above.

Director Compensation

In March and June 2021, our board of directors approved the following annual independent director compensation program:

Independent Director Compensation Policy		
Annual Board Retainers		
Board Member	$	20,000
Chairman of the Board	$	10,000
Annual Committee Chair Retainer		
Audit	$	70,000
Compensation	$	20,000
Nominating and Corporate Governance	$	20,000

Each annual cash retainer is paid quarterly in arrears. There are currently no equity grants for service on the board of directors. We do not provide any perquisites to directors but will reimburse all directors for expenses incurred in physically attending meetings or performing their duties as directors.

The following Director Compensation Table summarizes the compensation of each of our non-employee directors for services rendered to us during the year ended December 31, 2021:

2021 Director Compensation Table

Name	Fees Earned or Paid in	Stock Awards ($)(1)	Option Awards ($)(1)	All Other Compensation ($)	Total ($)

	Cash ($)				
Amit Kumar	50,000	-	-	-	50,000
Kim J. Huntley (2)	77,500	-	-	-	77,500
Will A. Clarke	40,000	-	-	-	40,000
David Peterson (3)	-	-	-	-	-
Victor Lee (3)	-	-	-	-	-

(1) None.

(2) The Company increased the annual retainer for the Audit Committee Chair to $70,000 for the 2021 fiscal year for the additional time burden relating to SEC filings and remediation efforts for the Company's material weakness in financial controls and procedures.

(3) Non-independent directors do not receive compensation for their board service.

In addition to the fees listed above, we reimburse the directors for travel expenses submitted to us related to their attendance at meetings of the Board or its committees. The directors did not receive any other compensation or personal benefits.

Code of Ethics

We have adopted a code of ethics that applies to our principal executive officer, principal financial officer, principal accounting officer and other senior finance and accounting staff. The code is designed to, among other things, deter wrongdoing and to promote the honest and ethical conduct of our officers and employees. The text of our code of ethics can be found on our Internet website at www.ascentsolar.com. If we effect an amendment to, or waiver from, a provision of our code of ethics, we intend to satisfy our disclosure requirements by posting a description of such amendment or waiver on that Internet website or via a current report on Form 8-K.

Communication with the Board of Directors

Stockholders may communicate with the Board by sending correspondence to our Chairman, c/o the Corporate Secretary, at our corporate address on the cover of this Form 10-K. It is our practice to forward all such correspondence to our Chairman, who is responsible for determining whether to relay the correspondence to the other members of the Board.

Item 11. Executive Compensation

We have opted to comply with the executive compensation disclosure rules applicable to "smaller reporting companies," as such term is defined in the rules promulgated under the Securities Act.

This section provides an overview of the compensation awarded to, earned by, or paid to each individual who served as our principal executive officer during 2021, and up to two of our next most highly compensated executive officers in respect of their service to our Company for 2021. Our named executive officers, or the Named Executive Officers, for the year ended December 31, 2021, are:

- Victor Lee, our CEO; and
- Michael J. Gilbreth, our CFO.

The following Summary Compensation Table sets forth certain information regarding the compensation of our Named Executive Officers for services rendered in all capacities to us during the years ended December 31, 2021 and 2020.

Summary Compensation Table

Name and Principal Position	Year	Salary ($)	Bonus ($)	Stock Awards ($)	Option Awards ($)	All Other Comp ($)	Total ($)
Victor Lee - Chief Executive Officer (1)	2021	165,000	200,000	-	-	-	365,000
	2020	96,903	-	-	-	-	96,903
Michael J. Gilbreth - Chief Financial Officer (2)	2021	165,000	74,250	-	-	-	239,250
	2020	37,706	-	-	-	-	37,706

(1) Mr. Lee's employment agreement provides for a minimum annual salary of $300,000, which salary was increased to $330,000 in 2016. Due to liquidity constraints, Mr. Lee agreed to limit his salary for 2020 and 2021 to the amounts shown in the summary compensation table above. For the 2022 year, Mr. Lee has agreed to an annual salary of $165,000. In April 2021, the Compensation Committee approved a special bonus to Mr. Lee of $100,000, and in December 2021, the Compensation Committee approved an additional bonus to Mr. Lee of $100,000.

(2) Mr. Gilbreth joined the Company on October 5, 2020. In December 2021, the Compensation Committee approved a bonus to Mr. Gilbreth of $74,250.

Executive Employment Agreements

On April 4, 2014, we entered into an employment agreement with Mr. Lee. The employment agreement provides that Mr. Lee will receive an annual base salary of $300,000, subject to annual adjustments as determined by our board. Mr. Lee will also be eligible for an annual bonus of up to 100% of his base salary as determined at the sole discretion of our board or compensation committee. Under this agreement, if the Company terminates Mr. Lee without cause, then subject to his execution of a release of claims, (i) Mr. Lee is entitled to receive twelve months of base salary from the date of termination, and (ii) the initial stock option grant that Mr. Lee received upon commencing employment will remain exercisable for a year following the termination date. The initial stock option grant is currently fully vested, but Mr. Lee was historically entitled to an additional year of vesting under such initial stock option grant upon termination without cause prior to the full vesting of the option. In addition, the employment agreement provides that Mr. Lee is eligible to participate in the Company's standard benefit plans and programs. Under the employment agreement, Mr. Lee is subject to a two year non-compete and non-solicit following termination of employment.

On October 5, 2020, the Company appointed Michael J. Gilbreth to serve as the Chief Financial Officer of the Company. The Company hired Mr. Gilbreth pursuant to the terms of a letter agreement and a standard and customary confidentiality, non-competition, and no-solicitation agreement. The offer letter provides for at-will employment with an annual base salary of $165,000, and an annual bonus opportunity of up to 60% of base salary. An annual minimum bonus of 25% of base salary is guaranteed, and the additional 35% is discretionary.

The following table sets forth information concerning the outstanding equity awards granted to the named executive officer as of December 31, 2021.

Outstanding Equity Awards at Fiscal Year-End 2021

	Option Awards				Stock Awards	
	Number of Securities Underlying Unexercised Options (#)		Option Exercise	Option Expiration	Number of Shares or Units of Stock That Have Not	Market Value of Shares or Units of Stock That Have Not
Name	Exerciseable	Unexerciseable	Price ($/sh)	Date	Vested	Vested
Victor Lee (1)	*	-	*	3/1/2023	-	-
	*	-	*	4/4/2024	-	-
	*	-	*	2/11/2025	-	-
	*	-	*	6/18/2025	-	-
	*	-	*	3/10/2026	-	-

(1) After giving effect to the January 2022 reverse stock split, each of Mr Lee's outstanding stock options (i) is exercisable for fewer than one share, and (ii) has a per share exercise price in excess of $6,000,000.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

Securities Authorized for Issuance under Equity Compensation Plans

None.

SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The following table shows information regarding the beneficial ownership of our common stock by our directors, executive officers, former executive officers and greater than 5% beneficial owners as of March 14, 2022.

Beneficial ownership is determined in accordance with the rules of the SEC and generally includes any shares over which a person exercises sole or shared voting or investment power and all shares issuable upon exercise of options or the vesting of restricted stock within 60 days of March 14, 2022. For purposes of calculating the percentage of our common stock beneficially owned, the number of shares of our common stock includes 30,586,804 shares of our common stock outstanding as of March 14, 2022.

Unless otherwise indicated, each of the stockholders listed below has sole voting and investment power with respect to the shares beneficially owned.

The address for each director or Named Executive Officer is c/o Ascent Solar Technologies, Inc., 12300 Grant Street, Thornton, Colorado 80241.

Name of Beneficial Owner	No. of Shares Beneficially Owned	Percentage
5% Stockholders:		
Crowdex Investment, LLC (1)	5,545,042	18.1%
BD 1 Investment Holding, LLC (2)	15,933,334	52.1%
TubeSolar AG (3)	4,961,234	16.2%
Named Executive Officers and Directors:		
Victor Lee	1	*
Michael J. Gilbreth	-	*
Amit Kumar, Ph.D.	1	*
Kim J. Huntley	1	*
Will A. Clarke	-	*
David Peterson (4)	-	*
All directors and executive officers as a group (6 persons)	3	*

* Less than 1.0%

(1) The address of Crowdex Investment, LLC ("Crowdex") is 1675 South State Street, Suite B, Kent County, Delaware 19901. Bernd Förtsch is the 100% direct and indirect beneficial owner of Crowdex.

(2) The address of BD 1 Investment Holdings, LLC (“BD1”) is 1675 South State Street, Suite B, Kent County, Delaware 19901. Johannes Kuhn and Ute Kuhn are the indirect beneficial owners of BD1.

(3) The address for TubeSolar AG (“TubeSolar”) is Berliner Allee 65, D – 86153 Augsburg, Germany. Bernd Förtsch directly and indirectly owns a controlling interest in TubeSolar. Mr. Förtsch disclaims beneficial ownership over any of the securities owned by TubeSolar.

(4) Mr. Peterson is the manager of Crowdex. Mr. Peterson disclaims beneficial ownership of any securities owned by Crowdex.

Item 13. Certain Relationships and Related Transactions, and Director Independence

RELATED PARTY TRANSACTIONS

Relationship with Crowdex and TubeSolar

Crowdex and TubeSolar are both directly and indirectly beneficially owned and controlled by Bernd Förtsch.

On September 22, 2020, we entered into a securities purchase agreement (“Series 1A SPA”) with Crowdex for the private placement of the Company’s newly designated Series 1A Convertible Preferred Stock (“Series 1A Preferred Stock”). We sold 2,000 shares of Series 1A Preferred Stock to Crowdex in exchange for $2,000,000 of gross proceeds at an initial closing under the Series 1A SPA on September 22, 2020.

In November 2020, Crowdex converted 1,200 shares of outstanding Series 1A Preferred Stock into 2,400,000 shares of Common Stock.

On November 27, 2020, we issued to Crowdex a $500,000 unsecured convertible promissory note in a private placement and received $500,000 of gross proceeds from the offering. On December 31, 2020, we sold 500 shares of Series 1A Preferred Stock to Crowdex in exchange for the cancellation of the note issued on November 27, 2020. There were no additional cash proceeds from this closing.

Crowdex acquired a $250,000 aggregate principal amount convertible promissory note of the Company from the original noteholder, Penumbra Solar, Inc., in September 2020. On December 9, 2021, Crowdex converted the note, together with accrued interest, into 545,041 shares of common stock.

On January 4, 2021, the Company entered into a securities purchase agreement with TubeSolar. Pursuant to this securities purchase agreement, the Company sold 2,500 shares of Series 1A Preferred Stock to TubeSolar and received $2,500,000 of gross proceeds on January 5, 2021. On July 19, 2021, we issued TubeSolar 120,000 shares of common stock upon the conversion by TubeSolar of 60 shares of Series 1A Preferred Stock. On September 3, 2021, we issued TubeSolar 80,000 shares of common stock upon the conversion by TubeSolar of 40 shares of Series 1A Preferred Stock.

On September 15, 2021, we entered into the JDA with TubeSolar to pursue the APV market. We also jointly established the JV. See “Item 1 Business” for additional detail.

On February 1, 2022:

- Crowdex converted their remaining 1,300 shares of Series 1A Preferred Stock into 2,600,000 shares of common stock;
- TubeSolar converted their remaining 2,400 shares of Series 1A Preferred Stock into 4,800,000 shares of common stock.

Relationship with BD1

On December 18, 2020, the Company entered into a securities exchange agreement (“BD1 Exchange Agreement”) with BD1. BD1 had previously acquired all of the Company’s existing outstanding unsecured notes (other than notes held by Global Ichiban and Crowdex) from the original note holders. Pursuant to the terms of the BD1 Exchange Agreement, BD1 agreed to surrender and exchange all of its outstanding promissory notes with principal balances of approximately $10.4 million (including accrued interest and default penalties). In exchange and without the payment of any additional consideration, the Company issued to BD1 two unsecured convertible promissory notes with principal amounts of $10,340,000 (the “First Exchange Note”) and $160,000 (the “Second Exchange Note”). On August 16, 2021, BD1 sold and assigned a portion of the First Exchange Note equal to $600,000 in principal amount to Nanyang Investment Management Pte Ltd (“Nanyang”) on behalf of a client account for a purchase price of $600,000, and on January 21, 2022, further sold and assigned a portion of the First Exchange Note equal to $1,000,000 in principal amount to Nanyang on behalf of a client account for a purchase price of $1,000,000. On January 3, 2022, BD1 sold and assigned a portion of the First Exchange Note equal to $1,000,000 in principal amount to Fleur Capital Pte Ltd (“Fleur”) on behalf of a client account for a purchase price of $1,000,000. The Company has issued to BD1 an unsecured convertible promissory note with principal amount of $7,740,000 replacing the First Exchange Note (the “Replacement Note” and, together with the Second Exchange Note, the “BD1 Exchange Notes”).

On August 2, 2021, we entered into a securities purchase agreement with BD1 for the private placement of an aggregate of 133,334 shares of our common stock at a fixed price of $75 (as adjusted for the reverse stock split) per share in two tranches of 66,667 shares in exchange for $10,000,000 of aggregate gross proceeds. On September 2, 2021, we closed on the first tranche and, on November 5, 2021, we closed on the second tranche, receiving aggregate gross proceeds of $10,000,000.

On February 1, 2022, BD1 converted its $7,900,000 aggregate outstanding principal amount of BD1 Exchange Notes into 15,800,000 shares of common stock.

Johannes Kuhn is the indirect beneficial owner of BD1.

Relationship with Global Ichiban

On September 9, 2020, the Company entered into a securities exchange agreement (“GI Exchange Agreement”) with Global Ichiban Limited, a British Virgin Islands corporation (“GI”).

Pursuant to the terms of the GI Exchange Agreement, GI agreed to surrender and exchange all of its existing outstanding promissory notes with an aggregate principal balance of $6,374,666 (including accrued interest). In exchange, the Company issued to GI a secured convertible promissory note with a principal amount of $6,400,000 (“GI Exchange Note”).

On March 9, 2021, the Company entered into a settlement agreement (“Settlement”) with GI. Pursuant to the Settlement, the Company issued 33,600 shares of Common Stock of the Company (“Settlement Shares”) to GI in exchange for the cancellation of the GI Exchange Note, which had an outstanding principal balance of $5,800,000. The GI Exchange Note, which was originally scheduled to mature on September 30, 2022, had a variable-rate conversion feature that entitled GI to convert into shares of Common Stock of the Company at 80% of the 5-day average closing bid-price prior to any conversion.

Policies and Procedures with Respect to Transactions with Related Persons

The Board recognizes that related person transactions can present a heightened risk of potential or actual conflicts of interest. Accordingly, our Audit Committee charter requires that all such transactions will be reviewed and subject to approval by members of our Audit Committee, which will have access, at our expense, to our or independent legal counsel. Future transactions with our officers, directors or greater than five percent stockholders will be on terms no less favorable to us than could be obtained from independent third parties.

Director Independence

Our Board of Directors has determined that three out of our five directors are independent directors, as defined under the applicable rules of the Nasdaq and OTC Markets listing standards. The independent directors are Messrs. Kumar, Huntley and Clarke.

Item 14. Principal Accounting Fees and Services

PRINCIPAL ACCOUNTANTS

Fees for audit and related services by our accounting firm, Haynie & Company, for the years ended December 31, 2021 and 2020 were as follows:

	2021	2020
Audit fees	$ 155,500	$ 155,500
Audit related fees	12,700	29,236
Total audit and audit related fees	168,200	184,736
Tax fees	-	22,000
All other fees	-	-
Total Fees	$ 168,200	$ 206,736

Audit fees for Haynie & Company for fiscal year 2021 and 2020 represents aggregate fees for the 2021 and 2020 annual audit and quarterly reviews of the financial statements. Audit-related services consisted primarily of audit of employee benefit plan and work performed in connection with our registration statements.

Audit Committee Pre-Approval Policies and Procedures

The Audit Committee charter provides that the Audit Committee will pre-approve all audit services and non-audit services to be provided by our independent auditors before the accountant is engaged to render these services. The Audit Committee may consult with management in the decision making process, but may not delegate this authority to management. The Audit Committee may delegate its authority to pre-approve services to one or more committee members, provided that the designees present the pre-approvals to the full committee at the next committee meeting. All audit and non-audit services performed by our independent accountants have been pre-approved by our Audit Committee to assure that such services do not impair the auditors’ independence from us.

PART IV

Item 15. Exhibits and Financial Statement Schedules

(a) The following documents are filed as part of this Annual Report on Form 10-K:

(1) Financial Statements—See Index to Financial Statements at Item 8 of the Annual Report on Form 10-K.

(2) Financial Statement Schedules—Supplemental schedules are not provided because of the absence of conditions under which they are required or because the required information is given in the financial statements or notes thereto.

(3) Exhibits: See Item 15(b) below.

(b) Exhibits: The exhibits listed on the accompanying Index to Exhibits on this Form 10-K are filed or incorporated into this Form 10-K by reference.

INDEX TO EXHIBITS

Set forth below is a list of exhibits that are being filed or incorporated by reference into this Annual Report on Form 10-K:

Exhibit No.	Description
3.1	Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.2 to our Registration Statement on Form SB-2 filed on January 23, 2006 (Reg. No. 333-131216))
3.2	Certificate of Amendment to the Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.1 to our Quarterly Report on Form 10-Q for the quarter ended September 30, 2011)
3.3	Certificate of Amendment to the Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed February 11, 2014)
3.4	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated August 26, 2014. (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed September 2, 2014)
3.5	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated October 27, 2014 (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K dated October 28, 2014)
3.6	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated December 22, 2014. (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K dated December 23, 2014)
3.7	Second Amended and Restated Bylaws (incorporated by reference to Exhibit 3.2 to our Current Report on Form 8-K filed on February 17, 2009)
3.8	First Amendment to Second Amended and Restated Bylaws (incorporated by reference to Exhibit 3.3 to our Quarterly Report on Form 10-Q for the quarter ended September 30, 2009)
3.9	Second Amendment to Second Amended and Restated Bylaws (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed January 25, 2013)
3.10	Third Amendment to Second Amended and Restated Bylaws (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed December 18, 2015)
3.11	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated May 26, 2016 (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed June 2, 2016)
3.12	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated September 15, 2016 (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed September 16, 2016)
3.13	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated March 16, 2017 (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed March 17, 2017)
3.14	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated July 19, 2018 (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed July 23, 2018)
3.15	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated September 23, 2021 (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed September 24, 2021)
3.16	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated January 27, 2022 (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed February 2, 2022)
4.1	Form of Common Stock Certificate (incorporated by reference to Exhibit 4.1 to our Registration Statement on Form SB-2/A filed on June 6, 2006 (Reg. No. 333-131216))
4.2	Certificate of Designations of Series A Preferred Stock (filed as Exhibit 4.2 to our Registration Statement on Form S-3 filed July 1, 2013 (Reg. No. 333-189739))
4.3*	Description of Securities
10.1	Securities Purchase Agreement, dated January 17, 2006, between the Company and ITN Energy Systems, Inc. (incorporated by reference to Exhibit 10.1 to our Registration Statement on Form SB-2 filed on January 23, 2006 (Reg. No. 333-131216))CTR
10.2	Invention and Trade Secret Assignment Agreement, dated January 17, 2006, between the Company and ITN Energy Systems, Inc. (incorporated by reference to Exhibit 10.2 to our Registration Statement on Form SB-2 filed on January 23, 2006 (Reg. No. 333-131216))CTR

10.3	Patent Application Assignment Agreement, dated January 17, 2006, between the Company and ITN Energy Systems, Inc. (incorporated by reference to Exhibit 10.3 to our Registration Statement on Form SB-2 filed on January 23, 2006 (Reg. No. 333-131216))
10.4	License Agreement, dated January 17, 2006, between the Company and ITN Energy Systems, Inc. (incorporated by reference to Exhibit 10.4 to our Registration Statement on Form SB-2 filed on January 23, 2006 (Reg. No. 333-131216))CTR
10.5	Letter Agreement, dated November 23, 2005, among the Company, ITN Energy Systems, Inc. and the University of Delaware (incorporated by reference to Exhibit 10.16 to our Registration Statement on Form SB-2/A filed on May 26, 2006 (Reg. No. 333-131216))
10.6	License Agreement, dated November 21, 2006, between the Company and UD Technology Corporation (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on November 29, 2006)CTR
10.7	Novation Agreement, dated January 1, 2007, among the Company, ITN Energy Systems, Inc. and the United States Government (incorporated by reference to Exhibit 10.23 to our Annual Report on Form 10-KSB for the year ended December 31, 2006)
10.8†	Executive Employment Agreement, dated April 4, 2014, between the Company and Victor Lee (filed as Exhibit 10.1 to our Current Report on Form 8-K filed on April 9, 2014)
10.9†	Seventh Amended and Restated 2005 Stock Option Plan (incorporated by reference to Annex B of our definitive proxy statement dated April 22, 2016)
10.10†	Seventh Amended and Restated 2008 Restricted Stock Plan Stock Option Plan Plan (incorporated by reference to Annex A of our definitive proxy statement dated April 22, 2016)
10.11	Industrial Lease for 12300 Grant Street, Thornton, Colorado dated September 21, 2020 (incorporated by reference to Exhibit 10.50 to our Annual Report on Form 10-K filed January 29, 2021)
10.12	Long-Term Supply and Joint Development Agreement dated September 15, 2021 (incorporated by reference to Exhibit 10.2 to our Quarterly Report on Form 10-Q for the quarter ended September 30, 2021)
10.13*	Fleur Capital Unsecured Convertible Promissory Note dated January 3, 2022
10.14*	Nanyang Unsecured Convertible Promissory Note dated January 21, 2022
23.1*	Consent of Haynie & Company
31.1*	Chief Executive Officer Certification pursuant to section 302 of the Sarbanes-Oxley Act of 2002
31.2*	Chief Financial Officer Certification pursuant to section 302 of the Sarbanes-Oxley Act of 2002
32.1*	Chief Executive Officer Certification pursuant to section 906 of the Sarbanes-Oxley Act of 2002
32.2*	Chief Financial Officer Certification pursuant to section 906 of the Sarbanes-Oxley Act of 2002
101.INS	Inline XBRL Instance Document – the instance document does not appear in the Interactive Data File because XBRL tags are embedded within the Inline XBRL document.
101.SCH	Inline XBRL Taxonomy Extension Schema Document
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)
*	Filed herewith
CTR	Portions of this exhibit have been omitted pursuant to a request for confidential treatment.
†	Denotes management contract or compensatory plan or arrangement.

Item 16. Form 10-K Summary

None.

ASCENT SOLAR TECHNOLOGIES, INC.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized on the 14th day of March, 2022.

ASCENT SOLAR TECHNOLOGIES, INC.
By: /S/ VICTOR LEE
Lee Kong Hian (aka Victor Lee)
President and Chief Executive Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant in the capacities and on the dates indicated.

Signature	Capacities	Date
/S/ VICTOR LEE Lee Kong Hian (aka Victor Lee)	President & Chief Executive Officer and a Director (Principal Executive Officer)	March 14, 2022
/S/ MICHAEL J. GILBRETH Michael J. Gilbreth	Chief Financial Officer (Principal Financial and Accounting Officer)	March 14, 2022
/S/ AMIT KUMAR Amit Kumar, Ph.D.	Chairman of the Board of Directors	March 14, 2022
/S/ WILL A. CLARKE Will A. Clarke	Director	March 14, 2022
/S/ KIM J. HUNTLEY Kim J. Huntley	Director	March 14, 2022
/S/ DAVID PETERSON David Peterson	Director	March 14, 2022

Ascent Solar Technologies, Inc.

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and
Stockholders of Ascent Solar Technologies, Inc.

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Ascent Solar Technologies, Inc. (the Company) as of December 31, 2021 and 2020, and the related statements of operations, stockholders' deficit, and cash flows for each of the years in the two-year period ended December 31, 2021, and the related notes (collectively referred to as the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2021 and 2020, and the results of its operations and its cash flows for each of the years in the two-year period ended December 31, 2021, in conformity with accounting principles generally accepted in the United States of America.

Substantial Doubt about the Company's Ability to Continue as a Going Concern

The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. As more fully described in Note 4 to the consolidated financial statements, the Company has continued limited photovoltaic production at its manufacturing facility and does not expect that sales revenue and cash flows will be sufficient to support operations and cash requirements until it has fully implemented its product strategy. These factors raise substantial doubt about the Company's ability to continue as a going concern. Management's plans in regard to these matters are also described in Note 4 to the consolidated financial statements. The consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's consolidated financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits, we are required to obtain an understanding of internal control over financial reporting, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Complex Financing Transactions and Derivative Liabilities

Description of the Matter:

As discussed in Notes 9, 11, and 12 to the consolidated financial statements, the Company's financing transactions include conversions to equity and agreements to restructure debt through assignment or settlement. Certain convertible notes were convertible into a variable number of shares, and the conversion feature was bifurcated from the debt host and accounted for as a derivative liability. Accounting for troubled debt restructuring and derivative liabilities is complex and involves significant judgement and estimations.

How We Addressed the Matter in Our Audit:

We reviewed the underlying assignment and settlement agreements, evaluated management's troubled debt restructuring analysis, and confirmed outstanding balances with lenders. We also reviewed the Company's debt agreements to determine if there were unidentified derivatives.

/s/ Haynie & Company

Haynie & Company
Salt Lake City, Utah
March 14, 2022

We have served as the Company's auditor since 2017.

ASCENT SOLAR TECHNOLOGIES, INC.
CONSOLIDATED BALANCE SHEETS

	December 31, 2021	December 31, 2020
ASSETS		
Current Assets:		
Cash and cash equivalents	$ 5,961,760	$ 167,725
Trade receivables, net of allowance of $26,000 and $45,883, respectively	49,250	5,539
Inventories	592,172	534,431
Prepaid and other current assets	247,736	71,575
Total current assets	6,850,918	779,270
Property, Plant and Equipment:	22,425,935	24,867,176
Accumulated depreciation	(22,146,273)	(24,848,408)
	279,662	18,768
Other Assets:		
Operating lease right-of-use assets, net	4,984,688	5,633,663
Patents, net of accumulated amortization of $135,050 and $467,102, respectively	86,595	439,836
Equity method investment	21,205	-
Other non-current assets	625,000	500,000
	5,717,488	6,573,499
Total Assets	12,848,068	7,371,537
LIABILITIES AND STOCKHOLDERS' DEFICIT		
Current Liabilities:		
Accounts payable	$ 642,165	$ 736,986
Related party payables	45,000	135,834
Accrued expenses	991,534	1,518,212
Accrued interest	475,671	438,063
Notes payable	250,000	250,000
Current portion of operating lease liability	646,742	575,404
Promissory notes, net	-	193,200
Embedded derivative liability	-	5,303,984
Total current liabilities	3,051,112	9,151,683
Long-Term Liabilities:		
Non-current operating lease liabilities	4,532,490	5,179,229
Non-current secured promissory notes, net	-	5,405,637
Non-current convertible notes, net	8,076,847	7,813,048
Accrued warranty liability	21,225	14,143
Total liabilities	15,681,674	27,563,740
Stockholders' Deficit:		
Series A preferred stock, $.0001 par value; 750,000 shares authorized; 48,100 and 48,100 shares issued and outstanding, respectively ($801,533 and $752,765 Liquidation Preference, respectively)	5	5
Common stock, $0.0001 par value, 500,000,000 authorized; 4,786,804 and 3,659,828 shares issued and outstanding, respectively	479	368
Additional paid in capital	424,948,698	401,590,209
Accumulated deficit	(427,782,788)	(421,782,785)
Total stockholders' deficit	(2,833,606)	(20,192,203)
Total Liabilities and Stockholders' Deficit	$ 12,848,068	$ 7,371,537

The accompanying notes are an integral part of these consolidated financial statements.

ASCENT SOLAR TECHNOLOGIES, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS

	For the Years Ended December 31, 2021	For the Years Ended December 31, 2020
Revenues		
Products	$ 607,783	$ 66,613
Total Revenues	607,783	66,613
Costs and Expenses		
Costs of revenue	1,902,414	174,588
Research, development and manufacturing operations	4,140,319	1,165,193
Selling, general and administrative	3,297,982	1,029,720
Depreciation and amortization	57,314	151,658
Total Costs and Expenses	9,398,029	2,521,159
Loss from Operations	(8,790,246)	(2,454,546)
Other Income/(Expense)		
Other income/(expense), net	(169,423)	3,002,170
Interest expense	(1,088,327)	(3,507,533)
Change in fair value of derivatives and loss on extinguishment of liabilities, net	4,047,993	4,577,353
Total Other Income/(Expense)	2,790,243	4,071,990
Net Income/(Loss)	$ (6,000,003)	$ 1,617,444
Net Income/(Loss) Per Share (Basic)	$ (1.54)	$ 1.15
Net Income/(Loss) Per Share (Diluted)	$ (1.54)	$ 0.32
Weighted Average Common Shares Outstanding (Basic)	3,894,015	1,410,347
Weighted Average Common Shares Outstanding (Diluted)	3,894,015	3,721,120

The accompanying notes are an integral part of these consolidated financial statements.

ASCENT SOLAR TECHNOLOGIES, INC.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' DEFICIT

	Series A Preferred Stock		Series A1 Preferred Stock		Common Stock		Additional Paid-In	Accumulated	Total Stockholders'
	Shares	Amount	Shares	Amount	Shares	Amount	Capital	Deficit	Equity (Deficit)
Balance at January 1, 2020	48,100	$ 5	-	$ -	991,143	$ 99	$398,293,344	$(423,400,229)	$(25,106,781)
Interest Expense paid with Common Stock	-	-	-	-	4,266	-	2,132	-	2,132
Proceeds from issuance of Series 1A Preferred Stock	-	-	1,300	-	-	-	1,300,000	-	1,300,000
Stock issued for fees	-	-	-	-	-	-	-	-	-
Loss on Extinguishment of Liabilities	-	-	-	-	-	-	150,000	-	150,000
Conversion of Bellridge Note into Common Shares	-	-	-	-	90,000	9	44,991	-	45,000
Conversion of Global Ichiban Note into Common Shares	-	-	-	-	174,419	18	599,984	-	600,002
Conversion of Series A1 Preferred Stock into Common Stock	-	-	-	-	2,400,000	240	1,199,760	-	1,200,000
Net Income								1,617,444	1,617,444
Balance at December 31, 2020	48,100	$ 5	1,300	$ -	3,659,828	$ 366	$401,590,211	$(421,782,785)	(20,192,203)
Proceeds from issuance of Series 1A Preferred Stock	-	-	2,500	-	-	-	2,500,000	-	2,500,000
Proceeds from issuance of Common Stock	-	-	-	-	148,334	15	12,999,985	-	13,000,000
Conversion of Global Ichiban Note into Common Shares	-	-	-	-	33,600	3	5,799,997	-	5,800,000
Loss on Extinguishment of Liabilities	-	-	-	-	-	-	1,686,079	-	1,686,079
Conversion of TubeSolar Series 1A Preferred Stock into Common Stock	-	-	(100)	-	200,000	20	(20)	-	-
Conversion of Nanyang Note into Common Stock	-	-	-	-	200,000	20	99,980	-	100,000
Conversion of Crowdex into Common Stock	-	-	-	-	545,042	55	272,466	-	272,521
Net Income								(6,000,003)	(6,000,003)
Balance at December 31, 2021	48,100	$ 5	3,700	$ -	4,786,804	$ 479	$424,948,698	$(427,782,788)	(2,833,606)

The accompanying notes are an integral part of these consolidated financial statements.

ASCENT SOLAR TECHNOLOGIES, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS

	For the Years Ended December 31,	
	2021	2020
Operating Activities:		
Net income/(loss)	$ (6,000,003)	$ 1,617,444
Adjustments to reconcile net loss to cash used in operating activities:		
Depreciation and amortization	57,314	151,658
Operating lease asset amortization	648,975	185,827
Patent write off	297,702	—
Realized (gain) on sale and foreclosure of assets	—	(2,987,170)
Amortization of deferred financing costs	—	4,525
Non-cash interest expense	—	820,035
Amortization of debt discount	1,008,162	1,381,685
Bad debt expense	—	(141)
Warranty reserve	7,082	(14,261)
Change in fair value of derivatives and (gain) on extinguishment of liabilities, net	(4,047,993)	(4,577,353)
Changes in operating assets and liabilities:		
Accounts receivable	(43,711)	(5,398)
Inventories	(57,741)	(539)
Prepaid expenses and other current assets	(301,161)	(524,502)
Accounts payable	(77,173)	(321,576)
Related party payable	(90,834)	(174,339)
Operating lease liabilities	(575,401)	(64,856)
Accrued interest	62,781	1,225,578
Accrued expenses	(292,442)	398,464

Net cash (used in) operating activities	(9,404,443)	(2,884,919)
Investing Activities:		
Purchase of property, plant and equipment	(280,317)	—
Contributions to equity method investment	(21,205)	—
Proceeds on sale of assets	—	254,600
Patent activity costs	—	(156)
Net cash provided by (used in) investing activities	(301,522)	254,444
Financing Activities:		
Proceeds from debt issuance	—	443,200
Repayment of debt	—	(145,000)
Proceeds from issuance of stock	15,500,000	2,500,000
Net cash provided by (used in) financing activities	15,500,000	2,798,200
Net change in cash and cash equivalents	5,794,035	167,725
Cash and cash equivalents at beginning of period	167,725	—
Cash and cash equivalents at end of period	$ 5,961,760	$ 167,725
Supplemental Cash Flow Information:		
Cash paid for interest	$ —	$ —
Non-Cash Transactions:		
Conversions of preferred stock and convertible notes to equity	$ 6,072,521	$ 647,132
Series 1A preferred stock conversion	$ 100,000	$ —
Extinguishment of note payable	$ 193,200	$ —
Operating lease assets obtained in exchange for	$ —	$ (5,819,489)

operating lease liabilities				
Non-cash mortgage derecognition	$	—	$	(6,443,897)
Non-cash property foreclosure	$	—	$	6,443,897
Initial embedded derivative liabilities	$	—	$	(447,903)
Promissory notes exchanged for convertible notes	$	—	$	650,000

The accompanying notes are an integral part of these consolidated financial statements.

NOTE 1. ORGANIZATION

Ascent Solar Technologies, Inc. (“Ascent”) was incorporated on October 18, 2005 from the separation by ITN Energy Systems, Inc. (“ITN”) of its Advanced Photovoltaic Division and all of that division’s key personnel, core technologies, and certain trade secrets and royalty free licenses to use in connection with the manufacturing, developing marketing, and commercializing Copper-Indium-Gallium-diSelenide (“CIGS”) photovoltaic (“PV”) products. ITN, a private company incorporated in 1994, is an incubator dedicated to the development of thin film, PV, battery, fuel cell and nano technologies. Through its work on research and development contracts for private and governmental entities, ITN developed proprietary processing and manufacturing know how applicable to PV products generally, and CIGS PV products in particular. ITN formed Ascent to commercialize its investment in CIGS PV technologies.

Currently, the Company is focusing on integrating its PV products into high value markets such as aerospace, satellites, near earth orbiting vehicles, and fixed wing unmanned aerial vehicles (“UAV”). The value proposition of Ascent’s proprietary solar technology not only aligns with the needs of customers in these industries, but also overcomes many of the obstacles other solar technologies face in these unique markets. Ascent has the capability to design and develop finished products for end users in these areas as well as collaborate with strategic partners to design and develop custom integrated solutions for products like fixed-wing UAVs. Ascent sees significant overlap of the needs of end users across some of these industries and can achieve economies of scale in sourcing, development, and production in commercializing products for these customers.

On September 15, 2021, the Company entered into the JDA with TubeSolar, a significant existing stakeholder in the Company. Under the terms of the JDA, the Company will produce, and TubeSolar will purchase, thin-film PV Foils for use in TubeSolar’s solar modules for APV applications that require solar foils for its production. Under the JDA, the Company will receive up (i) to $4 million of NRE fees, (ii) up to $13.5 million of payments upon achievement of certain agreed production and cost structure milestones, and (iii) product revenues from sales of PV Foils to TubeSolar. The JDA has no fixed term, and may only be terminated by either party for breach. The Company recognized $40,000 in product revenue from TubeSolar during the year ended December 31, 2021.

The Company and TubeSolar have also jointly established Ascent Solar Technologies Germany GmbH (“Ascent Germany”), in which TubeSolar holds of 30% of the entity. The purpose of Ascent Germany is to establish and operate a PV manufacturing facility in Germany that will produce and deliver PV Foils exclusively to TubeSolar. Until Ascent Germany’s facility is fully operational, PV Foils will be manufactured in the Company’s existing facility in Thornton, Colorado. The parties expect to jointly develop next generation tooling for use in manufacturing PV Foils at the JV facility. The Company purchased 17,500 shares of the JV for 1 Euro per share and accounts for this investment as an equity method investment as it does not have control of this entity, but does have significant influence over the activities that most significantly impacts the entity’s operations and financial performance. The Company currently cannot quantify its maximum exposure in this entity.

On January 28, 2022 as of 5:00 pm Eastern Time, the Company effected a reverse stock split of the Company’s common stock, par value $0.0001 per share (the “Common Stock”) at a ratio of one-for-five thousand (the “Reverse Stock Split”). The Company’s common stock began trading on a split-adjusted basis at 9:30 am Eastern Time on January 31, 2022. Stockholders also received one whole share of Common Stock in lieu of a fractional share and no fractional shares were issued. All shares and per share amounts in the consolidated financial statements and accompanying notes have been retroactively adjusted to give effect to the Reverse Stock Split.

Following the Reverse Stock Split, the Company’s issued and outstanding shares of Common Stock were decreased from approximately 23.74 billion pre-split shares to 4.81 million post-split shares. In connection with the Reverse Stock Split effectiveness, the number of authorized shares of the Company's Common Stock were decreased from 30 billion to 500 million shares.

Although the Company is focused on various markets for its product, the Chief Executive Officer makes significant operating decisions and assesses the performance of the Company as a single business segment. Accordingly, the Company has one reportable segment.

NOTE 2. BASIS OF PRESENTATION

The accompanying consolidated financial statements have been derived from the accounting records of Ascent Solar Technologies, Inc. and its direct and indirectly wholly owned subsidiaries Ascent Solar (Asia) Pte. Ltd., and Ascent Solar (Shenzhen) Co., Ltd. (collectively, the “Company”) as of December 31, 2021 and 2020, and the results of operations for the years ended December 31, 2021 and 2020. Ascent Solar (Shenzhen) Co., Ltd. is wholly owned by Ascent Solar (Asia) Pte. Ltd. All significant inter-company balances and transactions have been eliminated in the accompanying consolidated financial statements.

The preparation of financial statements in conformity with US GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

NOTE 3. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Cash Equivalents: The Company classifies all short-term investments in interest bearing bank accounts and highly liquid debt securities purchased with an original maturity of three months or less to be cash equivalents. The Company maintains cash balances which may exceed federally insured limits. The Company does not believe this results in significant credit risk.

Inventories: All inventories are stated at the lower of cost or net realizable value, with cost determined using the weighted average method. Inventory balances are frequently evaluated to ensure they do not exceed net realizable value. The computation for net realizable value takes into account many factors, including expected demand, product life cycle and development plans, module efficiency, quality issues, obsolescence and others. Management's judgment is required to determine reserves for obsolete or excess inventory. As of December 31, 2021, and 2020, the Company had inventory reserve balances of $395,943 and $598,392, respectively. If actual demand and market conditions are less favorable than those estimated by management, additional inventory write downs may be required.

Property, Plant and Equipment: Property, plant and equipment are recorded at the original cost to the Company. Assets are being depreciated over estimated useful lives of three to 10 years using the straight-line method, as presented in the table below, commencing when the asset is placed in service. Leasehold improvements are depreciated over the shorter of the remainder of the lease term or the life of the improvements. Upon retirement or disposal, the cost of the asset disposed of and the related accumulated depreciation are removed from the accounts and any gain or loss is reflected in income. Expenditures for repairs and maintenance are expensed as incurred.

	Useful Lives in Years
Manufacturing machinery and equipment	5 - 10
Furniture, fixtures, computer hardware/ software	3 - 7
Leasehold improvements	life of lease

Patents: At such time as the Company is awarded patents, patent costs are amortized on a straight-line basis over the legal life on the patents, or over their estimated useful lives, whichever is shorter. As of December 31, 2021, and 2020, the Company had $86,595 and $439,836 of net patent costs, respectively. Of these amounts $45,015 and $103,740 represent costs net of amortization incurred for awarded patents, and the remaining $41,580 and $663,892 represents costs incurred for patent in process applications as of December 31, 2021 and 2020, respectively. During the years ended December 31, 2021 and 2020, the Company capitalized $0 and $156 in patent costs, respectively, as it worked to secure design rights and trademarks for newly developed products. Amortization expense was $37,891 and $45,920 for the years ended December 31, 2021 and 2020, respectively.

During the year ended December 31, 2021, the Company concluded that certain expired patents were not curable and certain patents in process would not be granted. As such, during the year ended December 31, 2021, the Company wrote off the remaining book value of these assets and recorded a charge of $297,702 in Other income/(expense) in the consolidated statement of operations.

As of December 31, 2021, future amortization of patents is expected as follows:

2022	$	19,169
2023		19,168
2024		6,493
2025		185
2026		-
	$	45,015

Impairment of Long-lived Assets: The Company analyzes its long-lived assets (property, plant and equipment) and definitive-lived intangible assets (patents) for impairment, both individually and as a group, whenever events or changes in circumstances indicate the carrying amount of the assets may not be recoverable. Events that might cause impairment would include significant current period operating or cash flow losses associated with the use of a long-lived asset or group of assets combined with a history of such losses, significant changes in the manner of use of assets and significant negative industry or economic trends. An undiscounted cash flow analysis is calculated to determine if impairment exists. If impairment is determined to exist, any related loss is calculated using the difference between the fair value and the carrying value of the assets. During the years ended December 31, 2021 and 2020, the Company did not incur impairments of its manufacturing facilities and equipment**.**

Equity Method Investment: The Company accounts for its investments in stock of other entities over which the Company has significant influence, but not control, using the equity method of accounting. Under the equity method of accounting, the Company increases its investment for contributions made and records its proportionate share of net earnings, declared dividends and partnership distributions based on the most recently available financial statements of the investee. The Company re-evaluates the classification at each balance sheet date and when events or changes in circumstances indicate that there is a change in the Company's ability to exercise significant influence. The Company evaluates its equity method investments for potential impairment whenever events or changes in circumstances indicate that there is an other-than-temporary decline in the value of the investment. Declines in fair value that are deemed to be other-than-temporary are charged to Other income (expense), net.

Related Party Payables: The Company accounts for fees due to board members in the related party payables account on the consolidated balance sheets.

Convertible Notes: The Company issues, from time to time, convertible notes. Refer to Note 11 for further information.

Convertible Preferred Stock: The Company evaluates its preferred stock instruments under FASB ASC 480, *"Distinguishing Liabilities from Equity"* to determine the classification, and thereby the accounting treatment, of the instruments. Refer to Notes 13 and 14 for further discussion on the classification of each instrument.

Derivatives: The Company evaluates its financial instruments under FASB ASC 815, *"Derivatives and Hedging"* to determine whether the instruments contain an embedded derivative. When an embedded derivative is present, the instrument is evaluated for a fair value adjustment upon issuance and at the end of every reporting period. Any adjustments to fair value are treated as gains and losses in fair values of derivatives and are recorded in the Consolidated Statements of Operations. Refer to Notes 11 and 12 for further discussion on embedded derivatives.

Product Warranties: The Company provides a limited warranty to the original purchaser of products against defective materials and workmanship. The Company also guarantees that standalone modules and PV integrated consumer electronics will achieve and maintain the stated conversion efficiency rating for certain products. Warranty accruals are recorded at the time of sale and are estimated based upon product warranty terms, historical experience and analysis of peer company product returns. The Company assesses the adequacy of its liabilities and makes adjustments as necessary based on known or anticipated warranty claims, or as new information becomes available.

Leases: The Company determines if an arrangement is a lease or contains a lease at the inception of the contract. The Company accounts for non-lease components, such as certain taxes, insurance and common area maintenance, separate from the lease arrangement. Operating lease liabilities, which represent the Company's obligation to make lease payments arising from the lease, and corresponding Operating lease right-of-use assets, which represent the

Company's right to use an underlying asset for the lease term, are recognized at the commencement date of the lease based on the present value of fixed future payments over the lease term. The Company utilizes the lease term for which it is reasonably certain to use the underlying asset, including consideration of options to extend or terminate the lease. Incentives received from landlords are recorded as a reduction to the lease right-of-use assets. The Company does not recognize lease right-of-use assets and corresponding lease liabilities for leases with initial terms of 12 months or less.

The Company calculates the present value of future payments using the discount rate implicit in the lease, if available, or its incremental borrowing rate. The incremental borrowing rate is the rate of interest that a lessee would have to pay to borrow on a collateralized basis over a similar term at an amount equal to the lease payments in a similar economic environment. In determining the Company's operating lease right of use assets and operating lease liabilities, the Company applied these incremental borrowing rates to the minimum lease payments within the lease agreement.

Revenue Recognition:

Product revenue. We recognize revenue for the sale of PV modules and other equipment sales at a point in time following the transfer of control of such products to the customer, which typically occurs upon shipment or delivery depending on the terms of the underlying contracts. For module and other equipment sales contracts that contain multiple performance obligations, we allocate the transaction price to each performance obligation identified in the contract based on relative standalone selling prices, or estimates of such prices, and recognize the related revenue as control of each individual product is transferred to the customer.

During the years ended December 31, 2021 and 2020, the Company recognized product revenue of $607,783 and $66,613, respectively.

Milestone revenue. Each milestone arrangement is a separate performance obligation. The transaction price is estimated using the most likely amount method and revenue is recognized as the performance obligation is satisfied through achieving manufacturing or cost targets and engineering targets. No milestone revenue was recognized for the years ended December 31, 2021 and 2020.

Government contracts revenue. Revenue from government research and development contracts is generated under terms that are cost plus fee or firm fixed price. We generally recognize this revenue over time using cost-based input methods, which recognize revenue and gross profit as work is performed based on the relationship between actual costs incurred compared to the total estimated costs of the contract. In applying cost-based input methods of revenue recognition, we use the actual costs incurred relative to the total estimated costs to determine our progress towards contract completion and to calculate the corresponding amount of revenue to recognize.

Cost based input methods of revenue recognition are considered a faithful depiction of our efforts to satisfy long-term government research and development contracts and therefore reflect the performance obligations under such contracts. Costs incurred that do not contribute to satisfying our performance obligations are excluded from our input methods of revenue recognition as the amounts are not reflective of our transferring control under the contract. Costs incurred towards contract completion may include direct costs plus allowable indirect costs and an allocable portion of the fixed fee. If actual and estimated costs to complete a contract indicate a loss, provision is made currently for the loss anticipated on the contract.

No government contract revenue was recognized for the years ended December 31, 2021 and 2020.

As a practical expedient, the Company elects to exclude disclosures related to certain unsatisfied performance obligations. These performance obligations include the milestone performance obligations which are wholly unsatisfied as of December 31, 2021.

Receivables and Allowance for Doubtful Accounts: Trade accounts receivable are recorded at the invoiced amount as the result of transactions with customers. The Company maintains allowances for doubtful accounts for estimated losses resulting from the inability of its customers to make required payments. The Company estimates the collectability of accounts receivable using analysis of historical bad debts, customer creditworthiness and current economic trends. Reserves are established on an account-by-account basis and are written off against the allowance in the period in which the Company determines that is it probable that the receivable will not be recovered.

The Company bills the government under cost-based research and development contracts at provisional billing rates which permit the recovery of indirect costs. These rates are subject to audit on an annual basis by the government agencies’ cognizant audit agency. The cost audit may result in the negotiation and determination of the final indirect cost rates. In the opinion of management, re-determination of any cost-based contracts will not have a material effect on the Company’s financial position or results of operations.

As of December 31, 2021 and 2020, the Company had an accounts receivable, net balance of $49,250 and $5,539, respectively. As of December 31, 2021 and 2020, the Company had an allowance for doubtful accounts of $26,000 and $45,883, respectively.

The payment terms and conditions in customer contracts vary. Customers required to prepay are represented by the contract liabilities, included in Accrued Liabilities on the Consolidated Balance Sheets, until the Company's performance obligations are satisfied. Invoiced customers are typically required to pay within 30 days of invoicing. Deferred revenue was as follows:

Balance as of January 1, 2020	$	-
Additions		307,500
Recognized as revenue		-
Balance as of December 31, 2020		307,500
Additions		22,500
Recognized as revenue		(307,500)
Balance as of December 31, 2021	$	22,500

For the years ended December 31, 2021 and 2020, one customer's revenue individually represented 83% and 67%, respectively, of the Company's total revenue.

Shipping and Handling Costs: The Company classifies shipping and handling costs for products shipped to customers as a component of "Cost of revenues" on the Company's Consolidated Statements of Operations. Customer payments of shipping and handling costs are recorded as a component of Revenues.

Research, Development and Manufacturing Operations Costs: Research, development and manufacturing operations expenses were $4,140,319 and $1,165,193 for the years ended December 31, 2021 and 2020, respectively. Research, development and manufacturing operations expenses include: 1) technology development costs, which include expenses incurred in researching new technology, improving existing technology and performing federal government research and development contracts, 2) product development costs, which include expenses incurred in developing new products and lowering product design costs, and 3) pre-production and production costs, which include engineering efforts to improve production processes, material yields and equipment utilization, and manufacturing efforts to produce saleable product. Research, development and manufacturing operations costs are expensed as incurred, with the exception of costs related to inventoried raw materials, work-in-process and finished goods, which are expensed as cost of revenue as products are sold.

Marketing and Advertising Costs: The Company advertises in print, television, online and through social media. The Company will also authorize customers to run advertising campaigns on its behalf through various media outlets. Marketing and advertising costs are expensed as incurred. Marketing and advertising expenses were $8,912 and $3,559 for the years ended December 31, 2021 and 2020, respectively.

Income Taxes: Deferred income taxes are provided using the liability method whereby deferred tax assets are recognized for deductible temporary differences and operating loss and tax credit carry forwards and deferred tax liabilities are recognized for taxable temporary differences. Temporary differences are the differences between the reported amounts of assets and liabilities and their tax bases. Deferred tax assets are reduced by a valuation allowance when, in the opinion of management, it is more likely than not that some portion or all of the deferred tax assets will not be realized. Deferred tax assets and liabilities are adjusted for the effects of the changes in tax laws and rates as of the date of enactment. Interest and penalties, if applicable, would be recorded in operations.

The Company has analyzed filing positions in all of the federal and state jurisdictions where it is required to file income tax returns, as well as all open tax years (2018-2021) in these jurisdictions. The Company believes its income tax filing positions and deductions will be sustained on audit and does not anticipate any adjustments that will result in a material adverse effect on the Company's financial condition, results of operations, or cash flows. Therefore, no reserves for uncertain income tax positions have been recorded.

Earnings per Share: Earnings per share ("EPS") are the amount of earnings attributable to each share of common stock. Basic EPS has been computed by dividing income available to common stockholders by the weighted-average number of common shares outstanding during the period. Income available to common stockholders has been computed by deducting dividends accumulated for the period on cumulative preferred stock (whether or not earned) from net income. Diluted earnings per share have been computed by dividing net income adjusted on an if-converted basis for the period by the weighted average number of common shares and potentially dilutive common share outstanding (which consist of options and convertible securities using the treasury stock method or the if-converted method, as applicable, to the extent they are dilutive).

Approximately 28.2 million dilutive common shares for the year ended December 31, 2021 were omitted because they were anti-dilutive. There were approximately 2.3 million dilutive shares for the year ended December 31, 2020.

Fair Value Estimates: Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. Valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. The Company uses fair value hierarchy based on three levels of inputs, of which, the first two are considered observable and the last unobservable, to measure fair value:

- Level 1 – Quoted prices in active markets for identical assets or liabilities.
- Level 2 – Inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.
- Level 3 – Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

Certain long-lived assets and current liabilities have been measured at fair value on a recurring and non-recurring basis. See Note 5. Property, Plant and Equipment and Note 11. Convertible Notes. The carrying amount of our long-term debt outstanding approximates fair value because our current borrowing rate does not materially differ from market rates for similar bank borrowings and are considered to be Level 2. The carrying value for cash and cash equivalents, accrued expenses and other assets and liabilities approximate their fair values due to their short maturities.

Recently Issued Accounting Standards

In August 2020, the FASB issued ASU No. 2020-06, *Debt – Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging Contracts in Entity s Own Equity (Subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity s Own Equity*. ASU 2020-06 will simplify the accounting for convertible instruments by reducing the number of accounting models for convertible debt instruments and convertible preferred stock. Limiting the accounting models results in fewer embedded conversion features being separately recognized from the host contract as compared with current GAAP. Convertible instruments that continue to be subject to separation models are (1) those with embedded conversion features that are not clearly and closely related to the host contract, that meet the definition of a derivative, and that do not qualify for a scope exception from derivative accounting and (2) convertible debt instruments issued with substantial premiums for which the premiums are recorded as paid-in capital. ASU 2020-06 also amends the guidance for the derivatives scope exception for contracts in an entity’s own equity to reduce form-over-substance-based accounting conclusions. ASU 2020-06 will be effective for smaller reporting public companies for fiscal years beginning after December 15, 2023, including interim periods within those fiscal years. Early adoption is permitted, but no earlier than fiscal years beginning after December 15, 2020, including interim periods within those fiscal years. Management has not yet evaluated the impact that the adoption of ASU 2020-06 will have on the Company’s consolidated financial statement presentation or disclosures.

Other new pronouncements issued but not effective as of December 31, 2021 are not expected to have a material impact on the Company’s consolidated financial statements.

NOTE 4. LIQUIDITY, CONTINUED OPERATIONS, AND GOING CONCERN

During the years ended December 31, 2021 and 2020, the Company entered into multiple financing agreements to fund operations. Further discussion of these transactions can be found in Notes 8, 9, 10, and 11.

The Company has continued limited PV production at its manufacturing facility. The Company does not expect that sales revenue and cash flows will be sufficient to support operations and cash requirements until it has fully implemented its product strategy. During the year ended December 31, 2021 the Company used $9,404,443 in cash for operations. As of December 31, 2021, the Company had $2,365,087 in net debt (debt adjusted for cash and cash equivalents), and $687,165 in payables. Also, as of December 31, 2021, the Company owed $475,671 in interest.

Additional projected product revenues are not anticipated to result in a positive cash flow position for the year 2022 overall and, as of December 31, 2021, the Company has a working capital of $3,799,806. As such, cash liquidity sufficient for the year ending December 31, 2022 will require additional financing.

The Company continues to accelerate sales and marketing efforts related to its consumer and military solar products and specialty PV application strategies through expansion of its sales and distribution channels. The Company has begun activities related to securing additional financing through strategic or financial investors, but there is no assurance the Company will be able to raise additional capital on acceptable terms or at all. If the Company's revenues do not increase rapidly, and/or additional financing is not obtained, the Company will be required to significantly curtail operations to reduce costs and/or sell assets. Such actions would likely have an adverse impact on the Company's future operations.

As a result of the Company's recurring losses from operations, and the need for additional financing to fund its operating and capital requirements, there is uncertainty regarding the Company's ability to maintain liquidity sufficient to operate its business effectively, which raises substantial doubt as to the Company's ability to continue as a going concern.

Management cannot provide any assurances that the Company will be successful in accomplishing any of its plans. These consolidated financial statements do not include any adjustments that might be necessary should the Company be unable to continue as a going concern.

NOTE 5. PROPERTY, PLANT AND EQUIPMENT

The following table summarizes property, plant and equipment as of December 31, 2021 and 2020:

	As of December 31,	
	2021	**2020**
Furniture, fixtures, computer hardware and computer software	$ 473,448	$ 489,421
Manufacturing machinery and equipment	21,863,624	24,377,755
Manufacturing machinery and equipment, in progress	88,863	-
Depreciable property, plant and equipment	22,425,935	24,867,176
Less: Accumulated depreciation and amortization	(22,146,273)	(24,848,408)
Net property, plant and equipment	$ 279,662	$ 18,768

The Company analyzes its long-lived assets for impairment, both individually and as a group, whenever events or changes in circumstances indicate that the carrying amount of the assets may not be recoverable.

Depreciation expense for the years ended December 31, 2021 and 2020 was $19,423 and $105,738, respectively. Depreciation expense is recorded under "Depreciation and amortization expense" in the Consolidated Statements of Operations.

On July 29, 2020 the Company's owned facility at 12300 Grant Street, Thornton, CO 80241 (the "Building") was foreclosed by the Building's first lien holder ("Mortgage Holder") and sold at public auction. The successful bidder for the Building was the Mortgage Holder, at the price of $7.193 million. As a result, the Company's obligations to Mortgage Holder and all of the Company's outstanding real property taxes on the Building were considered fully repaid. The Company recognized a gain of approximately $3 million on the sale of the property.

On September 21, 2020, the Company entered into a lease agreement with 12300 Grant LLC ("Landlord"), an affiliated company of the Mortgage Holder, for approximately 100,000 rentable square feet of the Building (the "Lease"). The lease is classified as an operating lease and accounted for accordingly. The Lease term is for 88 months commencing on September 21, 2020 at a rent of $50,000 per month including taxes, insurance and common area maintenance until December 31, 2020. Beginning January 1, 2021, the rent shall adjust to $80,000 per month on a triple net basis and shall increase at an annual rate of 3% per annum until December 31, 2027.

As of December 31, 2021 and 2020, assets and liabilities related to the Company's lease were as follows:

	As of December 31,	
	2021	**2020**
Operating lease right-of-use assets, net	$ 4,984,688	$ 5,633,663

Current portion of operating lease liability	646,742	575,404
Non-current portion of operating lease liability	4,532,490	5,179,229

During the years ended December 31, 2021 and 2020 the Company recorded operating lease costs included in rent expense of $1,033,570 and $287,103, respectively.

Future maturities of the operating lease liability are as follows:

2022	$	988,800
2023		1,018,464
2024		1,049,018
2025		1,080,488
2026		1,112,903
Thereafter		1,146,291
Total lease payments	**$**	**6,395,964**
Less amounts representing interest		(1,216,732)
Present value of lease liability	**$**	**5,179,232**

The remaining lease term and discount rate of the operating lease is 72.5 months and 7.0% respectively.

NOTE 6. INVENTORIES

Inventories consisted of the following at December 31, 2021 and 2020:

	As of December 31,	
	2021	**2020**
Raw materials	$ 575,154	$ 525,626
Work in process	15,803	-
Finished goods	1,215	8,805
Total	$ 592,172	$ 534,431

NOTE 7. NOTES PAYABLE

Prior to 2020, the Company entered into two agreements with a vendor (“Vendor 1”) to convert the balance of their account into four notes payable in the aggregate amount of $1,073,825. The notes bear interest of 6% per annum and matured on February 24, 2018 and July 31, 2018, respectively, but remained unpaid as of January 1, 2020. At January 1, 2020, the aggregate principal and accrued interest balances were $1,073,825 and $162,205, respectively. On September 11, 2020, the Company entered into a settlement agreement (the “Settlement Agreement A”) with Vendor 1 and paid $120,000 on September 23, 2020 as the full and final settlement of all amounts owed between the parties. Following payment, a satisfaction of an existing judgment in favor of Vendor 1 was filed in Adams County, Colorado. The Company booked a gain of approximately $1.1 million relating to Settlement Agreement A.

Prior to 2020, the Company entered into an agreement with another vendor (“Vendor 2”) to convert the balance of their account into a note payable in the amount of $250,000. The note bears interest of 5% per annum and matured on February 28, 2018. As of December 31, 2021, the Company had not made any payments on this note, the accrued interest was $56,336, and the note is due upon demand. To the best of our knowledge, Vendor 2 had not made any attempts to recover any amount owing to them since 2019.

Prior to 2020, the Company entered into a settlement agreement with a customer to convert the credit balance of their account into a note payable in the amount of $215,234. The note bears interest of 5% per annum and matured on December 31, 2019. The Company made principal and interest payments of $32,529 and $897, respectively. At January 1, 2020, the remaining principal and accrued interest balances were $182,705 and $21,933, respectively. On September 11, 2020, the Company entered into a settlement agreement (the “Settlement Agreement B”) with the customer and paid $20,000 on September 18, 2020 as the full and final settlement of all amounts owed between the parties. The Company booked a gain of approximately $185,000 relating to Settlement Agreement B.

NOTE 8. DEBT

On August 2, 2019, Colorado Housing and Finance Authority ("CHFA") entered into an agreement to assign the mortgage note to Iliad Research and Trading, L.P., a Utah limited liability partnership ("IRT"). This agreement closed on September 11, 2019, and IRT paid a total of $5,885,148 to CHFA to assume the note. The payment amount consisted of $5,405,666 of principal and $479,482 of interest and fees. Interest was accrued on the note at the default interest rate of 10.5%. At January 1, 2020, the remaining principal and accrued interest balances were $5,885,148 and $190,158, respectively.

On July 29, 2020, the Company's owned facility at 12300 Grant Street, Thornton, CO 80241 (the "Building") was foreclosed by IRT and sold at public auction.

NOTE 9. SECURED PROMISSORY NOTE

The following table provides a summary of the activity of the Company's secured notes:

	Global Ichiban	St. George	BD1	Total
Secured Notes Principal Balance at January 1, 2020	**5,012,897**	**2,160,000**	**—**	**$ 7,172,897**
New notes	6,400,000	—	—	6,400,000
Note conversions	(600,000)	—	—	(600,000)
Note Assignments	—	(2,160,000)	2,160,000	—
Notes Exchanged	(5,012,897)	—	(2,160,000)	(7,172,897)
Secured Notes Principal Balance at December 31, 2020	5,800,000	—	—	5,800,000
Less: remaining discount	(394,363)	—	—	(394,363)
Secured Notes, net of discount, at December 31, 2020	**5,405,637**	**—**	**—**	**5,405,637**
New notes		—	—	—
Note conversions	(5,800,000)	—	—	(5,800,000)
Secured Notes Principal Balance at December 31, 2021	**$ —**	**$ —**	**$ —**	**$ —**

Global Ichiban Secured Promissory Notes

Prior to 2020, the Company had issued secured notes to Global Ichiban Limited ("Global") that had aggregate remaining principal and accrued interest balances of $5,012,897 and $885,475, respectively, as of January 1, 2020.

All principal and accrued interest on the notes was redeemable at any time, in whole or in part, at the option of Global. The redemption amount may be paid in cash or converted into shares of common stock at a variable conversion price equal to the lowest of (i) 85% of the average VWAP for the shares over the prior 5 trading days, (ii) the closing bid price for the shares on the prior trading day, or (iii) $10,000 per share, at the option of the Company.

The notes may not be converted, and shares of the common stock may not be issued pursuant to the notes, if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 9.99% of the outstanding shares of common stock.

All the notes issued in accordance with the note purchase and exchange agreement dated November 30, 2017 were secured by a security interest on substantially all of the Company's assets, bear interest at a rate of 12% per annum and contain standard and customary events of default.

On September 9, 2020, the Company entered into a securities exchange agreement ("GI Exchange Agreement") with Global. Pursuant to the terms of the GI Exchange Agreement, Global agreed to surrender and exchange all of its existing outstanding promissory notes with an aggregate principal balance of $6,313,387 (including accrued interest). In exchange, the Company issued to Global a secured convertible promissory note with a principal amount of $6,400,000 ("GI Exchange Note"). The GI Exchange Note will mature on September 30, 2022. Principal on the GI Exchange Note, if not converted, will be payable in a lump sum on September 30, 2022. The GI Exchange Note will not bear any accrued interest but bears a default

interest rate of 18% in the event of a default under the GI Exchange Note. The GI Exchange Note is secured by a lien on substantially all of the Company's assets pursuant to the Security Agreement dated November 30, 2017 (the "Security Agreement") entered into between the Company and Global. The Company has accounted for the GI Exchange Agreement as a troubled debt restructuring. The future undiscounted cash flow of the new secured convertible promissory note totaling $6,400,000 is more than the carrying value of the original outstanding promissory notes totaling $6,313,387, therefore no gain was recorded and a new effective interest rate has been established based on the carrying value of the original promissory notes and revised cash flow. The difference of $86,613 was recorded as an original issue debt discount and will be charged to interest over the term of the note.

On December 9, 2020, Global converted $600,000 into 174,419 common shares. On March 9, 2021, the Company entered into a settlement agreement ("Settlement") with Global. Pursuant to the Settlement, the Company issued 33,600 shares of Common Stock of the Company to Global in exchange for the cancellation of the remaining outstanding secured promissory note of $5,800,000.

The conversion option associated with the note was deemed to include an embedded derivative that required bifurcation and separate accounting. Refer to Note 12. Derivative Liabilities for further details.

St. George Secured Convertible Notes

Prior to 2020, the Company had issued secured notes to St. George Investments LLC ("St. George") that had aggregate remaining principal and accrued interest balances of $2,160,000 and $252,751, respectively, as of January 1, 2020. Beginning six months from the date of issuance, St. George shall have the option to redeem all or a portion of the amounts outstanding under the Company Note. At St. George's option, redemption amounts are payable by the Company in cash or in the form of shares of the common stock. Conversions into common stock shall be calculated using a variable conversion price equal to 60% of the average of the two lowest closing bid prices for the shares over the prior 10-day trading period immediately preceding the conversion.

Shares of common stock may not be issued pursuant to these notes if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 9.99% of the outstanding shares of common stock.

The conversion option associated with the notes was deemed to include an embedded derivative that required bifurcation and separate accounting. Refer to Note 12. Derivative Liabilities for further details.

On September 9, 2020, all debts with St. George were assigned to BD1 as part of the Company's recapitalization and restructuring effort which began in June 2020. The Company subsequently entered into an Exchange Agreement with BD1 on December 18, 2020. Refer to the *BD1 Convertible Notes* in Note 11. Convertible Notes for further discussion.

NOTE 10. PROMISSORY NOTES

The following table provides a summary of the activity of the Company's non-convertible, unsecured, promissory notes:

	Investor 1	Investor 2	BD1	SBA	Total
Promissory Notes Principal Balance at January 1, 2020	**$ 494,437**	**$ 615,000**	**$ —**	**$ —**	**$ 1,109,437**
New principal	—	35,000	—	193,200	228,200
Notes assigned	(494,437)	(650,000)	1,144,437	—	—
Notes exchanged			(1,144,437)		$(1,144,437)
Promissory Notes Principal Balance at December 31, 2020	**—**	**—**	**—**	**193,200**	**193,200**
Notes forgiven	—	—	—	(193,200)	(193,200)
Promissory Notes Balance at December 31, 2021	**$ —**	**$ —**	**$ —**	**$ —**	**$ —**

Offering of Unsecured, Non-Convertible Notes to Investor 1

Prior to 2020, the Company had issued a note to a private investor ("Investor 1"), that had remaining principal and accrued interest balances of $494,437 and $145,971, respectively, as of January 1, 2020. The note bears an interest rate of 12%, and principal and interest on this note were payable at maturity. This note was not convertible into equity shares of the Company and was unsecured.

On September 11, 2020 the debt with Investor 1 was assigned to BD1 as part of the Company's recapitalization and restructuring effort which began in June 2020. The Company subsequently entered into an Exchange Agreement with BD1 on December 18, 2020. Refer to the *BD1 Convertible Notes* in Note 11. Convertible Notes for further discussion.

Offering of Unsecured, Non-Convertible Notes to Investor 2

Prior to 2020, the Company had issued notes to another private investor ("Investor 2"), that had aggregate remaining principal and accrued interest balances of $615,000 and $34,046, respectively, as of January 1, 2020. These notes bear interest at a rate of 12% and matured between September 11, 2019 and March 9, 2020. All principal and interest was payable upon maturity.

During 2020, the Company initiated a non-convertible, unsecured promissory note with Investor 2 for an aggregate principal amount of $150,000. The promissory note was issued with an original issue discount of $35,000, which will be recorded as interest expense ratably over the term of the note, resulting in proceeds to the company of $115,000, which was received in several tranches between September 2020 and November 2020. This note bears interest at 12% per annum and matured on May 1, 2021. All principal and interest is payable upon maturity.

On September 11, 2020, the entire debt with Investor 2 was assigned to BD1 as part of the Company's recapitalization and restructuring effort which began in June 2020. The Company subsequently entered into an Exchange Agreement with BD1 on December 18, 2020. Refer to the *BD1 Convertible Notes* in Note 11. Convertible Notes for further discussion.

SBA PPP

On April 17, 2020, the Company obtained a PPP Loan from Vectra Bank Colorado ("Vectra") in the aggregate amount of $193,200, which was established under the CARES Act, as administered by the Small Business Association ("SBA"). Under the terms of the CARES Act and the PPP, all or a portion of the principal amount of the PPP Loan is subject to forgiveness so long as, over the 24-week period following the Company's receipt of the proceeds of the PPP Loan, the Company uses those proceeds for payroll costs, rent, utility costs or the maintenance of employee and compensation levels. The PPP Loan is unsecured, guaranteed by the SBA, and has a two-year term, maturing on April 17, 2022. Interest accrues on the loan beginning with the initial disbursement; however, payments of principal and interest are deferred until Vectra's determination of the amount of forgiveness applied for by the Company is approved by the SBA. If the Company does not apply for forgiveness within 10 months after the last day of the covered period (defined, at the Company's election as 24 weeks), such payments will be due that month. On September 4, 2021, the Company received notification from Vectra that the SBA has forgiven the PPP loan. The Company recognized $195,852 of forgiven principal and accrued interest in Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net in the Consolidated Statement of Operations.

NOTE 11. CONVERTIBLE NOTES

The following table provides a summary of the activity of the Company's unsecured, convertible, promissory notes:

	Principal Balance 1/1/2020	New Notes	Notes assigned or exchanged	Notes converted	Principal Balance 12/31/2020	Less: Discount Balance	Net Principal Balance 12/31/2020
October 2016 Notes	**$ 330,000**	$ —	$ (330,000)	$ —	**$ —**	$ —	**$ —**
St. George Notes	**617,663**	—	(617,663)		**—**	—	**—**
BayBridge Notes	**940,600**	—	(940,600)		**—**	—	**—**
Bellridge Notes	**496,000**	—	(451,000)	(45,000)	**—**	—	**—**
Power Up Notes	**106,820**	—	(106,820)		**—**	—	**—**
Widjaja Note	**330,000**	—	(330,000)		**—**	—	**—**
GS Capital Notes	**169,500**	—	(169,500)		**—**	—	**—**
Penumbra Note (related party)	**—**	250,000	(250,000)		**—**	—	**—**
BD1 Notes (related party)	**—**	10,500,000	—		**10,500,000**	(2,936,952)	**7,563,048**
Crowdex Note (related party)	**—**	—	250,000		**250,000**	—	**250,000**
	$2,990,583	$10,750,000	$(2,945,583)	$ (45,000)	**$10,750,000**	$(2,936,952)	**$7,813,048**

	Principal Balance 12/31/2020	New Notes	Notes assigned or exchanged	Notes converted	Principal Balance 12/31/2021	Less: Discount Balance	Net Principal Balance 12/31/2021
BD1 Notes (related party)	**$10,500,000**	$ —	$(600,000)	$ —	**$ 9,900,000**	$(2,210,182)	**$7,689,818**
Crowdex Note (related party)	**250,000**	—	—	(250,000)	**—**	—	**—**
Nanyang Note	**—**	—	600,000	(100,000)	**500,000**	(112,971)	**387,029**
	$10,750,000	$ —	$ —	$(350,000)	**$10,400,000**	$(2,323,153)	**$8,076,847**

October 2016 Convertible Notes

Prior to 2020, the Company had issued convertible notes to a private investor that had remaining principal and accrued interest balances of $330,000 and $65,010, respectively, as of January 1, 2020.

The convertible notes matured on December 31, 2017 and bear an interest rate of 6% per annum, subject to increase to 24% per annum upon the occurrence and continuance of an event of default. Principal and accrued interest on the convertible notes is payable upon demand. The default interest rate has not been designated by the investor.

All principal and accrued interest on the convertible notes is convertible at any time, in whole or in part, at the option of the investor, into shares of common stock at a variable conversion price equal to 80% of the lowest closing bid price of the Company's common stock for the fifteen consecutive trading day period prior to the conversion date. After the six-month anniversary of the issuance of any convertible note, the conversion price for such note shall thereafter be equal to 50% of the lowest closing bid price of the Company's common stock for the fifteen consecutive trading day period prior to the conversion date. The convertible notes contain standard and customary events of default.

The conversion option associated with the notes was deemed to include an embedded derivative that required bifurcation and separate accounting. Refer to Note 12. Derivative Liabilities for further details.

On September 11, 2020, the October 2016 Convertible Notes were assigned to BD1 as part of the Company's recapitalization and restructuring effort which began in June 2020. The Company subsequently entered into an Exchange Agreement with BD1 on December 18, 2020. Refer to the *BD1 Convertible Notes* in Note 11. Convertible Notes for further discussion.

St. George Convertible Note

Prior to 2020, the Company sold and issued a $1,700,000 convertible note to St. George, which had a principal balance of $617,663 as of January 1, 2020.

This note matured on March 11, 2019. The note does not bear interest in the absence of an event of default. The note is due upon demand and a default interest rate has not been designated by St. George.

The conversion option associated with the note was deemed to include an embedded derivative that required bifurcation and separate accounting. Refer to Note 12. Derivative Liabilities for further details.

On September 9, 2020, the St. George Convertible Note was assigned to BD1 as part of the Company's recapitalization and restructuring effort which began in June 2020. The Company subsequently entered into an Exchange Agreement with BD1 on December 18, 2020. Refer to the *BD1 Convertible Notes* in Note 11. Convertible Notes for further discussion.

Baybridge Convertible Note

Prior to 2020, the Company had issued convertible notes to BayBridge Capital Fund LP ("BayBridge"), which had remaining principal and accrued interest balances of $940,600 and $65,888, respectively, as of January 1, 2020.

The Exchange Notes are unsecured, have no applicable registration rights, bear interest at a rate of 12% per annum, and matured between September 7, 2019 and August 22, 2020. The notes contain standard and customary events of default.

The terms of the Exchange Notes included a conversion feature which was the lesser of (i) a price range of $2.50 to $750, or (ii) a range of 65% to 70% of the lowest traded price for the shares over the prior five trading days.

The conversion option associated with the notes was deemed to include an embedded derivative that required bifurcation and separate accounting. Refer to Note 12. Derivative Liabilities for further details.

On September 11, 2020, the Baybridge Convertible Notes were assigned to BD1 as part of the Company's recapitalization and restructuring effort which began in June 2020. The Company subsequently entered into an Exchange Agreement with BD1 on December 18, 2020. Refer to the *BD1 Convertible Notes* in Note 11. Convertible Notes for further discussion.

Bellridge Convertible Notes

Prior to 2020, the Company had issued convertible notes to Bellridge Capital, LP ("Bellridge") which had aggregate principal and accrued interest balances of $496,000 and $63,474, respectively, as of January 1, 2020.

The note is not secured, contains no registration rights, has an interest rate of 10% per annum, matured on October 22, 2020, and contains standard and customary events of default. Bellridge shall have the option to convert all or a portion of the amounts outstanding under the note, into shares of the Company's common stock. Conversions into common stock shall be calculated using a variable conversion price equal to the lesser of (i) $2.50 or (ii) 70% of the lowest traded price for the shares over the prior ten-day trading period immediately preceding the conversion. The original issue discount of $20,000 was charged to interest, ratably, over the life of the note.

Shares of common stock may not be issued pursuant to any of these notes if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 4.99% of the outstanding shares of Common Stock.

During 2020, an aggregate principal of $45,000 and interest of $2,133, on the Bellridge convertible notes had been converted into 94,266 shares of common stock and no cash payments of principal or interest had been made.

The conversion option associated with the notes was deemed to include an embedded derivative that required bifurcation and separate accounting. Refer to Note 12. Derivative Liabilities for further details.

On September 11, 2020, the Bellridge Convertible Notes were assigned to BD1 as part of the Company's recapitalization and restructuring effort which began in June 2020. The Company subsequently entered into an Exchange Agreement with BD1 on December 18, 2020. Refer to the *BD1 Convertible Notes* in Note 11. Convertible Notes for further discussion.

Power Up Convertible Notes

Prior to 2020, the Company had issued convertible notes to Power Up Lending Group, LTD ("Power Up"), which had remaining aggregate principal and accrued interest balances of $106,820 and $9,346, respectively, at January 1, 2020.

Beginning in six months after issuance, Power Up shall have the option to convert all or a portion of the amounts outstanding under the convertible note, into shares of the Company's common stock. Conversions into common stock shall be calculated using a variable conversion price equal to 65% of the average of the three lowest closing bid prices for the shares over the prior ten-day trading period immediately preceding the conversion.

Shares of common stock may not be issued pursuant to any of these notes if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 4.99% of the outstanding shares of Common Stock.

The conversion option associated with the notes was deemed to include an embedded derivative that required bifurcation and separate accounting. Refer to Note 12. Derivative Liabilities for further details.

On September 11, 2020, the Power Up Convertible Notes were assigned to BD1 as part of the Company's recapitalization and restructuring effort which began in June 2020. The Company subsequently entered into an Exchange Agreement with BD1 on December 18, 2020. Refer to the *BD1 Convertible Notes* in Note 11. Convertible Notes for further discussion.

Widjaja Convertible Note

Prior to 2020, the Company had sold and issued a convertible note to Jason Widjaja ("Widjaja") which had remaining aggregate principal and accrued interest balances of $330,000 and $38,407, respectively, as of January 1, 2020. The note is unsecured, bears interest at 12% per annum, matures on January 11, 2020, and contains standard and customary events of default including but not limited to: (i) failure to make payments when due under the note, and (ii) bankruptcy or insolvency of the Company. Principal and interest on the note will be payable upon maturity.

At any time after inception of the note, until fully paid, Widjaja shall have the option to convert all or a portion of amounts outstanding under the note into shares of the Company's common stock. Conversions into common stock shall be calculated using a variable conversion price equal to 80% of the lowest closing bid price for the shares over the prior five trading days immediately preceding the conversion date.

There are no registration rights applicable to the note. Shares of common stock may not be issued pursuant to the note if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 19.99% of the outstanding shares of the Company's common stock.

During 2020, no principal and no interest had been converted into shares of common stock and no cash payments of principal or interest had been made.

The conversion option associated with the note was deemed to include an embedded derivative that required bifurcation and separate accounting. Refer to Note 12. Derivative Liabilities for further details.

On September 11, 2020, the Widjaja Convertible Note was assigned to BD1 as part of the Company's recapitalization and restructuring effort which began in June 2020. The Company subsequently entered into an Exchange Agreement with BD1 on December 18, 2020. Refer to the *BD1 Convertible Notes* in Note 11. Convertible Notes for further discussion.

GS Capital Convertible Note

Prior to 2020, the Company had sold and issued convertible notes to GS Capital Partners, LLC ("GS") which had remaining aggregate principal and accrued interest balances of $169,500 and $8,832, respectively, as of January 1, 2020.

These notes are unsecured, bear interest at 8% per annum, matures twelve months from the date of issuance, and contain standard and customary events of default including but not limited to: (i) failure to make payments when due under the note, and (ii) bankruptcy or insolvency of the Company. Principal and interest on the note will be payable upon maturity. There are no registration rights applicable to the note.

At any time after inception of the note until fully paid, GS shall have the option to convert all or a portion of amounts outstanding under the note into shares of the Company's common stock. Conversions into common stock shall be calculated using a variable conversion price equal to 65% of the average of the three lowest closing bid prices for the shares over the prior ten day trading period immediately preceding the conversion.

Shares of common stock may not be issued pursuant to the note if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 4.99% of the outstanding shares of the Company's common stock.

The conversion option associated with the notes was deemed to include an embedded derivative that required bifurcation and separate accounting. Refer to Note 12. Derivative Liabilities for further details.

On September 11, 2020, the GS Convertible Note was assigned to BD1 as part of the Company's recapitalization and restructuring effort which began in June 2020. The Company subsequently entered into an Exchange Agreement with BD1 on December 18, 2020. Refer to the *BD1 Convertible Notes* in Note 11. Convertible Notes for further discussion.

Penumbra Convertible Note

On June 9, 2020, the Company issued to Penumbra Solar, Inc. ("Penumbra") a $250,000 aggregate principal amount convertible promissory note. The Company has received $250,000 of gross proceeds from the offering of the note. The aggregate principal amount (together with accrued interest) will mature on June 9, 2021. The note bears interest at a rate of 6% per annum. The interest rate increases to 18% in the event of a default. The note is convertible, at the holder's option, into shares of the Company's Common Stock at a conversion price equal to $0.50 per share.

On September 25, 2020, the Penumbra Convertible Note was assigned to Crowdex.

Crowdex Convertible Note

On September 25, 2020, as discussed above, Penumbra assigned its note to Crowdex. At December 31, 2020, the note had a principal balance of $250,000 and an accrued interest balance of $8,425. The aggregate principal amount (together with accrued interest) will mature on June 9, 2021. The note bears an interest rate of 6% per annum. The interest rate increases to 18% in the event of a default. The note is convertible, at the holder's option, into shares of the Company's Common Stock at a conversion price equal to $0.50 per share. On December 9, 2021, Crowdex converted its aggregate principal and accrued interest totaling $272,521 into 545,041 shares of common stock.

BD1 Convertible Note

During September 2020, a number of the Company's investors entered into assignment agreements to sell their existing debt to BD1. Refer to Notes 9, 10, and 11, for more information. The assignments did not change the terms of the notes, and transferred ownership of the following debts:

	Principal Converted	Interest Converted	Footnote Reference
St George	$ 2,160,000	$ 417,000	Note 9
Investor 1	495,000	187,000	Note 10
Investor 2	650,000	86,000	Note 10
October 2016 Note	330,000	79,000	Note 11
St George	618,000	—	Note 11
Baybridge	941,000	152,000	Note 11
Bellridge	451,000	121,000	Note 11
Power Up	107,000	16,000	Note 11
Widjaja	330,000	68,000	Note 11
GS Capital	170,000	19,000	Note 11
Total	$ 6,252,000	$ 1,145,000	

On December 18, 2020, the Company entered into a securities exchange agreement ("BD1 Exchange Agreement") with BD1, who had previously acquired all of the Company's existing outstanding unsecured notes (other than notes held by GI and Crowdex) from the original note holders as listed above.

Pursuant to the terms of the BD1 Exchange Agreement, BD1 agreed to surrender and exchange all of its outstanding promissory notes with principal balances of approximately $10.4 million (including accrued interest and default penalties). In exchange, the Company issued to BD1 two unsecured convertible notes with an aggregate principal amount of $10,500,000 ("BD1 Exchange Notes"). The BD1 Exchange Notes do not bear any interest, and will mature on December 18, 2025. BD1 has the right, at any time until the BD1 Exchange Notes are fully paid, to convert any outstanding and unpaid principal into shares of Common Stock at a fixed conversion price equal to $0.50 per share. Accordingly, the Company would issue 21,000,000 shares of Common Stock upon a full conversion of the BD1 Exchange Notes.

On August 13, 2021, BD1 assigned $600,000 of its outstanding principal balance to Nanyang Investment Management Pte Ltd ("Nanyang"). As of December 31, 2021, BD1 held notes with an aggregate principal amount of $9,900,000 convertible to 19,800,000 shares of common stock.

Nanyang Convertible Note

On August 13, 2021, as discussed above, BD1 assigned $600,000 of the BD1 Exchange Notes to Nanyang. This note does not bear any interest and will mature on December 18, 2025. Nanyang has the right, at any time until the note is fully paid, to convert any outstanding and unpaid principal into share of common stock at a fixed conversion price equal to $0.50 per share. Accordingly, the Company would issue 1,200,000 common shares upon full conversion of this note. Shares of common stock may not be issued pursuant to this note if, after giving effect to the conversion or issuance, Nanyang, together with its affiliates, would beneficially own in excess of 4.99% of the outstanding shares of the Company's common stock.

On October 13, 2021, $100,000 of Nanyang's convertible notes were converted into 200,000 shares of common stock. As of December 31, 2021, Nanyang held notes with an aggregate principal amount of $500,000 convertible to 1,000,000 shares of common stock.

NOTE 12. DERIVATIVE LIABILITIES

The following table is a summary of the derivative liability activity for the years ended December 31, 2021 and 2020:

Derivative Liability Balance as of January 1, 2020	**$ 7,717,150**
Additional derivative liability on new notes	447,903
Change in fair value of derivative liability	(2,861,069)
Derivative Liability Balance as of December 31, 2020	**5,303,984**
Liability extinguished	(5,303,984)
Derivative Liability Balance as of December 31, 2021	**$ —**

Convertible Notes Assigned to BD1

The convertible notes that were assigned to BD1 in September 2020, further described above in Notes 10 and 11, were exchanged for new notes as part of the Company's recapitalization and restructuring effort which began in June 2020. Prior to the exchange, pursuant to a number of factors outlined in ASC Topic 815, *Derivatives and Hedging*, the conversion options in the notes were deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. The fair value measurements rely primarily on Company-specific inputs and the Company's own assumptions. With the absence of observable inputs, the Company determined these recurring fair value measurements reside primarily within Level 3 of the fair value hierarchy. The derivative associated with the notes approximates management's estimate of the fair value of the embedded derivative liability based on using a Monte Carlo simulation following a Geometric Brownian Motion with the following assumptions identified below.

At January 1, 2020, the aggregate derivative liability associated with these notes was $5,706,175. This value was derived from Management's fair value assessment using the following assumptions: annual volatility range of 42% to 46%, present value discount rate of 12%, and a dividend yield of 0%.

During the first three quarters of 2020, pursuant to ASC Topic 815, *Derivatives and Hedging*, Management conducted quarterly fair value assessments of the embedded derivatives associated with these notes. Engaging the services of a firm specializing in these valuations, it was determined that a rational investor would not convert the notes, and would not expect to do so in the foreseeable future. The Company had reported doubt as to its ability to continue as a going concern since 2015. The Company scaled down operations and did not expect to ramp up until significant financing could be obtained and had been operating under these conditions for some time already, continuously chasing funding to continue operations. Circumstances shifted in late 2019 and early 2020, making fundraising and continuing operations more difficult, thereby reducing liquidity and attractiveness of the common stock. These new circumstances made it clear to current and prospective investors that the Company would either file bankruptcy or restructure with a strategic investor. Accordingly, as of the valuation date, conversion of a debt instrument into common stock that cannot be sold in the marketplace would put the holder in a far less secure position compared to holding the instrument as debt. As a result of the fair value assessments, the Company recorded an aggregate net gain of $5,706,175 for the year ended December 31, 2020, as "Change in fair value of derivatives and gain/loss on extinguishment of liabilities, net" in the Consolidated Statements of Operations to properly reflect that the value of the embedded derivative had been eliminated in 2020.

Convertible Notes held by Global Ichiban

In connection with the convertible notes held by Global, further described above in Note 9, pursuant to a number of factors outlined in ASC Topic 815, *Derivatives and Hedging*, the conversion options in the notes were deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. The fair value measurements rely primarily on Company-specific inputs and the Company's own assumptions. With the absence of observable inputs, the Company determined these recurring fair value measurements reside primarily within Level 3 of the fair value hierarchy. The derivative associated with the notes approximates management's estimate of the fair value of the embedded derivative liability based on using a Monte Carlo simulation following a Geometric Brownian Motion with the following assumptions identified below.

At January 1, 2020, the aggregate derivative liability associated with these notes was $2,010,975. This value was derived from Management's fair value assessment using the following assumptions: annual volatility of 46%, present value discount rate of 12%, and a dividend yield of 0%.

The conversion option in the GI Exchange Note was deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance based on the following assumptions: annual volatility of 49%, expected interest rate of 1.52%, and a dividend yield of 0%, and appropriately recorded that value as a derivative liability. At September 9, 2020, the derivative liability associated with the Global note was $447,903. The fair value of the derivative was recorded as a debt discount and will be charged to interest over the life of the note.

The derivative liability associated with the note is subject to revaluation on a quarterly basis to reflect the market value change of the embedded conversion option. Management assessed the fair value option of this embedded derivative, as of December 31, 2020, using the following assumptions: annual volatility of 62%, and a dividend yield of 0%. As a result of the fair value assessments, the Company recorded an aggregate net loss of $2,845,106 for the year ended December 31, 2020, as "Change in fair value of derivatives and gain/loss on extinguishment of liabilities, net" in the Consolidated Statement of Operations to properly reflect that the value of the embedded derivative of $5,303,984 as of December 31, 2020.

On March 9, 2021, the Company entered into a settlement agreement with Global, further described above in Note 8. As a result of the settlement, the entire debt was cancelled and the Company recorded an aggregate net gain of $5,303,984 as "Change in fair value of derivatives and gain/loss on extinguishment of liabilities, net" in the Consolidated Statement of Operations to properly reflect that the value of the embedded derivative had been eliminated.

NOTE 13. SERIES A PREFERRED STOCK

In June 2013, the Company entered into a Securities Purchase Agreement with an investor to sell an aggregate of $750,000 shares of Series A Preferred Stock at a price of $8.00 per share, resulting in gross proceeds of $6.0 million. This purchase agreement included warrants to purchase up to 13,125 shares of common stock of the Company. The transfer of cash and securities took place incrementally, the first closing occurring on June 17, 2013 with the transfer of 125,000 shares of Series A Preferred Stock and a warrant to purchase 2,187 shares of common stock for $1.0 million. The final closings took place in August 2013, with the transfer of 625,000 shares of Series A Preferred Stock.

Holders of Series A Preferred Stock are entitled to cumulative dividends at a rate of 8% per annum when and if declared by the Board of Directors in its sole discretion. The dividends may be paid in cash or in the form of common stock (valued at 10% below market price, but not to exceed the lowest closing price during the applicable measurement period), at the discretion of the Board of Directors. The dividend rate on the Series A Preferred Stock is indexed to the Company's stock price and subject to adjustment. In addition, the Series A Preferred Stock contains a make-whole provision whereby, conversion or redemption of the preferred stock within 4 years of issuance will require dividends for the full four year period to be paid by the Company in cash or common stock (valued at 10% below market price, but not to exceed the lowest closing price during the applicable measurement period). This make-whole provision expired in June 2017.

The Series A Preferred Stock may be converted into shares of common stock at the option of the Company if the closing price of the common stock exceeds $1,160,000, as adjusted, for twenty consecutive trading days, or by the holder at any time. The Company has the right to redeem the Series A Preferred Stock at a price of $8.00 per share, plus any accrued and unpaid dividends, plus the make-whole amount (if applicable). At December 31, 2021, the preferred shares were not eligible for conversion to common shares at the option of the Company. The holder of the preferred shares may convert to common shares at any time, at no cost, at a ratio of 1 preferred share into 1 common share (subject to standard ratable anti-dilution adjustments). Upon any conversion (whether at the option of the Company or the holder), the holder is entitled to receive any accrued but unpaid dividends.

On October 6, 2016, the Series A Holder entered into an exchange agreement with a private investor. Pursuant to the exchange agreement, beginning December 5, 2016, the investor has the option to exchange, from time to time, all or any portion of the October 2016 Convertible Notes (see Note 11) for outstanding shares of Series A Preferred Stock from the Series A Holder.

Except as otherwise required by law (or with respect to approval of certain actions), the Series A Preferred Stock shall have no voting rights. Upon any liquidation, dissolution or winding up of the Company, after payment or provision for payment of debts and other liabilities of the Company, the holders of Series A Preferred Stock shall be entitled to receive, pari passu with any distribution to the holders of common stock of the Company, an amount equal to $8.00 per share of Series A Preferred Stock plus any accrued and unpaid dividends.

As of December 31, 2021, there were 48,100 shares of Series A Preferred Stock outstanding and accrued and unpaid dividends of $416,733.

NOTE 14. SERIES 1A PREFERRED STOCK

Series 1A Preferred Stock – Tranche 1 Closing

On September 22, 2020, the Company entered into a securities purchase agreement (“Series 1A SPA”) with Crowdex, for the private placement of up to $5,000,000 of the Company’s newly designated Series 1A Convertible Preferred Stock (“Series 1A Preferred Stock”).

Each share of Series 1A Preferred Stock has an original issue price of $1,000 per share. Shares of the Series 1A Preferred Stock are convertible into common stock at a fixed conversion price equal to $0.50 per common share, subject to standard ratable anti-dilution adjustments.

Outstanding shares of Series 1A Preferred Stock are entitled to vote together with the holders of common stock as a single class (on an as-converted to common stock basis) on any matter presented to the stockholders of the Company for their action or consideration at any meeting of stock holders (or written consent of stockholders in lieu of meeting).

Holders of the Series 1A Preferred Stock are not entitled to any fixed rate of dividends. If the Company pays a dividend or otherwise makes a distribution payable on shares of common stock, holders of the Series 1A Preferred Stock will receive such dividend or distribution on an as-converted to common stock basis. There are no specified redemption rights for the Series 1A Preferred Stock. Upon liquidation, dissolution or winding up, holders of Series 1A Preferred Stock will be entitled to be paid out of the Company’s assets, prior to the holders of our common stock, an amount equal to $1,000 per share plus any accrued but unpaid dividends (if any) thereon.

The Company sold 2,000 shares of Series 1A Preferred Stock to Crowdex in exchange for $2,000,000 of gross proceeds at an initial closing under the Series 1A SPA on September 22, 2020.

In November 2020, Crowdex converted 1,200 shares of outstanding Series 1A Preferred Stock into 2,400,000 shares of common stock.

On December 31, 2020 the Company sold 500 shares of Series 1A Preferred Stock to Crowdex in exchange for the cancellation of the Crowdex Note issued on November 27, 2020. There were no additional cash proceeds from this closing.

On January 4, 2021, the Company entered into a securities purchase agreement (“Series 1ATranche 2 SPA”) with TubeSolar. Pursuant to the Series 1A Tranche 2 SPA, the Company sold 2,500 shares of Series 1A Preferred Stock to TubeSolar and received $2,500,000 of gross proceeds on January 5, 2021. During the year ended December 31, 2021, TubeSolar converted 100 shares of Series 1A Preferred Stock into 200,000 shares of common stock.

NOTE 15. STOCKHOLDERS’ EQUITY (DEFICIT)

Common Stock

At, the Company had 500 million shares of common stock, $0.0001 par value, authorized for issuance. Each share of common stock has the right to one vote. As of December 31, 2021, the Company had 4,786,804 shares of common stock outstanding. The Company has not declared or paid any dividends related to the common stock through December 31, 2021.

On March 4, 2021, Baybridge purchased 15,000 shares of the Company’s common stock for an aggregate purchase price of $3,000,000.

On August 2, 2021, the Company entered into a common stock purchase agreement (“Common Stock SPA”) with BD1 for the placement of 133,333 shares of the Company’s common stock for an aggregate purchase price of $10,000,000. The first tranche of 66,667 shares for $5,000,000 closed on September 2, 2021 and the second tranche closed on November 5, 2021.

Preferred Stock

At December 31, 2020, the Company had 25,000,000 shares of preferred stock, $0.0001 par value, authorized for issuance. Preferred stock may be issued in classes or series. Designations, powers, preferences, rights, qualifications, limitations and restrictions are determined by the Company's Board of Directors. The following table summarizes the designations, shares authorized, and shares outstanding for the Company's Preferred Stock:

Preferred Stock Series Designation	Shares Authorized	Shares Outstanding
Series A	750,000	48,100
Series 1A	5,000	3,700
Series B-1	2,000	—
Series B-2	1,000	—
Series C	1,000	—
Series D	3,000	—
Series D-1	2,500	—
Series E	2,800	—
Series F	7,000	—
Series G	2,000	—
Series H	2,500	—
Series I	1,000	—
Series J	1,350	—
Series J-1	1,000	—
Series K	20,000	—

Series A Preferred Stock

Refer to Note 13 for Series A Preferred Stock activity.

Series 1A Preferred Stock

Refer to Note 14 for Series 1A Preferred Stock activity.

Series B-1, B-2, C, D, D-1, E, F, G, H, I, J, J-1, and K Preferred Stock

There were no transactions involving the Series B-1, B-2, C, D, D-1, E, G, H, I, J, J-1, or K during the years ended December 31, 2021 and 2020.

NOTE 16. INCOME TAXES

The Company records income taxes using the liability method. Under this method, deferred tax assets and are computed for the expected future impact of temporary differences between the financial statement and income tax bases of assets and liabilities using current income tax rates and for the expected future tax benefit to be derived from tax loss and tax credit carryforwards. ASC 740 provides detailed guidance for the financial statement recognition, measurement and disclosure of uncertain tax positions recognized in the financial statements. Tax positions must meet a "more-likely-than-not" recognition threshold before a benefit is recognized in the financial statements.

At December 31, 2021, the Company had $233.6 million of cumulative net operating loss carryforwards for federal income tax purposes that were available to offset future taxable income through the year 2037. At December 31, 2021, the Company had $64.8 million of cumulative net operating loss carryforwards for federal income tax purposes that were available to offset future taxable income indefinitely. Under the Internal Revenue Code, the future utilization of net operating losses may be limited in certain circumstances where there is a significant ownership change. The Company prepared an analysis for the year ended December 31, 2012 and determined that a significant change in ownership had occurred as a result of the cumulative effect of the sales of common stock through its offerings. Such change limited the Company's utilizable net operating loss carryforwards to $298.4 million for the year ended December 31, 2021. Available net operating loss carryforwards may be further limited in the event of another significant ownership change.

Deferred income taxes reflect an estimate of the cumulative temporary differences recognized for financial reporting purposes from that recognized for income tax reporting purposes. At December 31, 2021 and 2020, the components of these temporary differences and the deferred tax asset were as follows:

	As of December 31,	
	2021	2020
Deferred Tax Asset		
Accrued Expenses	$ 104,000	$ 22,000
Inventory Allowance	98,000	137,000
Other	5,000	10,000
Operating Lease Liability	1,280,000	1,183,000
Tax effect of NOL carryforward	74,167,000	72,307,000
Depreciation	596,000	355,000
Warranty reserve	5,000	3,000
Gross Deferred Tax Asset	76,255,000	74,017,000
Valuation Allowance	(75,003,000)	(72,555,000)
Net Deferred Tax Asset	$ 1,252,000	$ 1,462,000
Operating lease right-of-use asset, net	(1,231,000)	(1,287,000)
Amortization	(21,000)	(175,000)
Net Deferred Tax Liability	$ (1,252,000)	$ (1,462,000)
Total	—	—

In assessing the realizability of deferred tax assets, management considers whether it is more likely than not that some portion or all of the deferred tax assets will be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the periods in which those temporary differences become deductible. Management considers the scheduled reversal of deferred tax liabilities, projected future taxable income and tax planning strategies in making this assessment. Based upon the level of historical losses and projections of future taxable income over the periods in which the deferred tax assets are deductible, management believes it is not more-likely-than-not that the Company will realize the benefits of these deductible differences at December 31, 2021. The Company's deferred tax valuation allowance of $75.0 million reflected above is an increase of $2.4 million from the valuation allowance reflected as of December 31, 2020 of $72.6 million.

As of December 31, 2021, the Company has not recorded a liability for uncertain tax positions. The Company recognizes interest and penalties related to uncertain tax positions in income tax (benefit)/expense. No interest and penalties related to uncertain tax positions were accrued at December 31, 2021.

The Company's effective tax rate for the years ended December 31, 2021 and 2020 differs from the statutory rate due to the following (expressed as a percentage of pre-tax income):

	2021	2020
Federal statutory rate	21.0 %	21.0 %
State statutory rate	5.4 %	6.9 %
Permanent tax differences	(3.9)%	3.7 %
Derivative/Warrant Revaluation	— %	(30.9)%
Debt Discount	12.7 %	1.6 %
Deferred true-ups	4.9 %	48.9 %
Other	0.7 %	— %
Change in valuation allowance	(40.8)%	(51.2)%
	— %	— %

NOTE 17. COMMITMENTS AND CONTINGENCIES

In May 2019, the Company's former law firm filed suit against the Company in District Court in Adams County Colorado in an effort to collect approximately $1.2 million of unpaid fees (and related interest charges). On September 11, 2020, the Company entered into a settlement agreement (the "Settlement Agreement") with its former law firm. Pursuant to the Settlement Agreement, the Company paid $120,000 on September 23, 2020 as the full and final settlement of all amounts owed between the parties. Following such payment, a satisfaction of an existing judgment in favor of such law firm was filed in Adams County Colorado.

On July 29, 2020, the Company's owned facility at 12300 Grant Street, Thornton, CO 80241 (the "Building") was foreclosed by the Building's first lien holder ("Mortgage Holder") and sold at public auction. The successful bidder for the Building was the Mortgage Holder, at the price of $7.193 million. As a result, the Company's obligations to Mortgage Holder and all of the Company's outstanding real property taxes on the Building were considered fully repaid.

The Company is subject to various legal proceedings, both asserted and unasserted, that arise in the ordinary course of business. The Company cannot predict the ultimate outcome of such legal proceedings or in certain instances provide reasonable ranges of potential losses. However, as of the date of this report, the Company believes that none of these claims will have a material adverse effect on its consolidated financial position or results of operations. In the event of unexpected subsequent developments and given the inherent unpredictability of these legal proceedings, there can be no assurance that the Company's assessment of any claim will reflect the ultimate outcome, and an adverse outcome in certain matters could, from time to time, have a material adverse effect on the Company's consolidated financial position or results of operations in particular quarterly or annual periods.

NOTE 18. RETIREMENT PLAN

On July 1, 2006, the Company adopted a qualified 401(k) plan which provides retirement benefits for all of its eligible employees. Under the plan, employees become eligible to participate at the first entry date, provided they are at least 21 years of age. The participants may elect through salary reduction to contribute up to ceilings established in the Internal Revenue Code. The Company will match 100% of the first four percent of employee contributions. In addition, the Company may make discretionary contributions to the Plan as determined by the Board of Directors. Employees are immediately vested in all salary reduction contributions. Rights to benefits provided by the Company's discretionary and matching contributions vest 100% after the first year of service for all employees hired before January 1, 2010. For employees hired after December 31, 2009, matching contributions vest over a three-year period, one-third per year. Employer 401(k) match expense was $31,423 and 0 for the year ended December 31, 2021 and 2020, respectively. 401(k) match expenses are recorded under "Research, development and manufacturing operations" expense and "Selling, general and administrative" expense in the Consolidated Statements of Operations.

NOTE 19. SUBSEQUENT EVENTS

Below is the sequence of events subsequent to December 31, 2021 through the Audit Report date of March 14, 2022:

<u>*Reverse Stock Split*</u>

On January 28, 2022 as of 5:00 pm Eastern Time, the Company effected a 1:5,000 reverse stock split of the Company's common stock, par value $0.0001 per share. The Company's common stock began trading on a split-adjusted basis as of 9:30 am Eastern Time on January 31, 2022.

<u>*BD1 Convertible Notes*</u>

On January 3, 2022, BD1 sold and assigned $1,000,000 of its convertible notes to Fleur Capital Pte Ltd ("Fleur"). On January 21, 2022, BD1 sold and assigned $1,000,000 of its convertible notes to Nanyang. The aggregate remaining principal balance held by BD1 after these assignments was $7,900,000. On February 1, 2022, BD1 converted its $7,900,000 aggregate outstanding principal amount into 15,800,000 shares of common stock.

Series 1A Preferred Stock

On February 1, 2022:

- Crowdex converted their remaining 1,300 shares of Series 1A Preferred Stock into 2,600,000 shares of common stock.
- TubeSolar converted their remaining 2,400 shares of Series 1A Preferred Stock into 4,800,000 shares of common stock.

Convertible Notes

On February 2, 2022:

- Nanyang converted $600,000 of their convertible notes into 1,200,000 shares of common stock.
- Fleur converted $700,000 of their convertible notes into 1,400,000 shares of common stock.

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

(Mark One)

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2020

or

☐ **TRANSITION REPORT UNDER SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the Transition Period from to

Commission File No. 001-32919

Ascent Solar Technologies, Inc.
(Exact name of registrant as specified in its charter)

Delaware	**20-3672603**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
12300 Grant Street, Thornton, CO	**80241**
(Address of principal executive offices)	**(Zip Code)**

Registrant's telephone number including area code: 720-872-5000

Securities registered pursuant to Section 12(b) of the Act:

Title of Each Class	Name of Each Exchange on Which Registered
Common Stock, $0.0001 par value per share	OTC Market

Securities registered pursuant to Section 12(g) of the Act:
None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☐ No ☒

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Exchange Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☐ No ☒

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). ☐ Yes ☒ No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act:

Large accelerated filer	☐	Accelerated filer	☐
Non-accelerated filer	☐	Smaller reporting company	☒
		Emerging growth company	☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

As of June 30, 2020 , the last business day of the registrant's most recently completed second fiscal quarter, the aggregate market value of the registrant's common stock held by non-affiliates was approximately $523,000 based upon the last reported sale price of the registrant's common stock on that date as reported by OTC Market, operated by OTC Markets Group Inc.

As of May 13, 2021, there were 18,345,583,473 shares of our common stock issued and outstanding.

ASCENT SOLAR TECHNOLOGIES, INC.
Form 10-K Annual Report
for the Fiscal Year ended December 31, 2020
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FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K includes “forward-looking statements” that involve risks and uncertainties. Forward-looking statements include statements concerning our plans, objectives, goals, strategies, future events, future net sales or performance, capital expenditures, financing needs, plans or intentions relating to acquisitions, business trends and other information that is not historical information and, in particular, appear under headings including “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and “Business.” When used in this Annual Report, the words “estimates,” “expects,” “anticipates,” “projects,” “plans,” “intends,” “believes,” “forecasts,” “foresees,” “likely,” “may,” “should,” “goal,” “target,” and variations of such words or similar expressions are intended to identify forward-looking statements. All forward-looking statements are based upon information available to us on the date of this Annual Report.

These forward-looking statements are subject to risks, uncertainties and other factors, many of which are outside of our control, that could cause actual results to differ materially from the results discussed in the forward-looking statements, including, among other things, the matters discussed in this Annual Report in the sections captioned “Risk Factors” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations.” Factors you should consider that could cause these differences are:

- The impact of the novel coronavirus (“COVID-19”) pandemic on our business, results of operations, cash flows, financial condition and liquidity;
- Our operating history and lack of profitability;
- Our ability to develop demand for, and sales of, our products;
- Our ability to attract and retain qualified personnel to implement our business plan and corporate growth strategies;
- Our ability to develop sales, marketing and distribution capabilities;
- Our ability to successfully develop and maintain strategic relationships with key partners, including OEMs, system integrators, distributors, and e-commerce companies, who deal directly with end users in our target markets;
- The accuracy of our estimates and projections;
- Our ability to secure additional financing to fund our short-term and long-term financial needs;
- Our ability to maintain the listing of our common stock on the OTC Market;
- The commencement, or outcome, of legal proceedings against us, or by us, including ongoing ligation proceedings;
- Changes in our business plan or corporate strategies;
- The extent to which we are able to manage the growth of our operations effectively, both domestically and abroad, whether directly owned or indirectly through licenses;
- The supply, availability and price of equipment, components and raw materials, including the elements needed to produce our photovoltaic modules;
- Our ability to expand and protect the intellectual property portfolio that relates to our consumer electronics, photovoltaic modules and processes;
- Our ability to implement remediation measures to address material weaknesses in internal control;
- The extent to which our interests align with or deviate from our controlling stockholders;

- General economic and business conditions, and in particular, conditions specific to consumer electronics and the solar power industry; and
- Other risks and uncertainties discussed in greater detail in the section captioned "Risk Factors."

There may be other factors that could cause our actual results to differ materially from the results referred to in the forward-looking statements. We undertake no obligation to publicly update or revise forward-looking statements to reflect subsequent events or circumstances after the date made, or to reflect the occurrence of unanticipated events, except as required by law.

References to “we,” “us,” “our,” “Ascent,” “Ascent Solar” or the “Company” in this Annual Report mean Ascent Solar Technologies, Inc.

PART I

Item 1. Business

Business Overview

Ascent Solar was formed in October 2005 as a spinoff from technology incubator, ITN Energy Systems, Inc. (“ITN”), of its Advanced Photovoltaic Division and all of that division’s key personnel and core technologies to commercialize flexible photovoltaic (“PV”) modules using our proprietary monolithic integration thin film technology. The technology was initially developed at ITN beginning in 1994 and subsequently assigned and licensed to us at formation in 2005. Our proprietary manufacturing process deposits multiple layers of materials, including a thin film of highly efficient copper-indium-gallium-diselenide (“CIGS”) semiconductor material, on a flexible, lightweight, high tech plastic substrate using a roll-to-roll manufacturing process followed by laser patterning the layers to create interconnected PV cells, or PV modules, in a process known as monolithic integration. We believe that our unique technology and manufacturing process, which results in a much lighter, flexible yet durable module package, provides us with unique market opportunities relative to both the crystalline silicon (“c-Si”) based PV manufacturers that currently lead the PV market, as well as other thin film PV manufacturers that use substrate materials such as glass, stainless steel or other metals that can be heavier and more rigid than plastics.

We believe that the use of CIGS on a flexible, durable, lightweight, high tech plastic substrate will allow for unique and seamless integration of our PV modules into a variety of applications such as aerospace, defense, transportation, electronic products, off-grid structures and building integrated, as well as other products and applications that may emerge. For markets that place a high premium on weight, such as defense, space, near space, and aeronautic markets, we believe our materials provide attractive increases in power-to-weight ratio (specific power), and that our materials have superior specific power and voltage-to-area ratios than competing flexible PV thin film technologies. These metrics will be critical as we position ourselves to compete in challenging high value markets such as aerospace where Ascent Solar products can be integrated into satellites, near earth orbiting vehicles, airships and fixed wing unmanned aerial vehicles ("UAV").

Product History

In March 2008, we demonstrated initial operating capacity of our first production line by beginning production trials as an end-to-end integrated process. Initial operating capacity production trials resulted in average thin film device efficiencies of 9.5% and small area monolithically integrated module efficiencies of over 7.0%. During 2008, optimization trials resulted in thin film device efficiencies in the 9.5% to 11.5% range and corresponding module efficiencies in the 7.0% to 9.0% range. The test modules measured approximately 15 centimeters wide by 30 centimeters long. During the first quarter of 2009, we began limited production of monolithically integrated flexible CIGS modules in our initial production line. Our primary business model, at that time, was based upon mass production of solar modules of varying lengths, sizes and configurations. We provided sample modules to potential customers and development partners in various industries to explore integration of our products into new applications.

In July 2009, we obtained independent verification by the U.S. Department of Energy’s National Renewable Energy Laboratory (“NREL”) that our modules of approximately 15 centimeters wide by 30 centimeters long measured 10.4% in conversion efficiency. The modules tested at NREL were approximately 15 centimeters wide by 30 centimeters long. In October 2009, NREL further verified our achievement of a manufacturing milestone of 14.0% cell efficiency as well as a peak efficiency of 11.4% for CIGS modules. Later, in December 2010, we achieved 12.1% module efficiency on the same form factor. In October 2010, we completed internal qualification testing of a flexible packaging solution which successfully passed the rigorous standard of one thousand (1,000) hours of damp heat testing (85% relative humidity and 85° C temperature) guideline set forth by International Electrotechnical Commission (“IEC”) 61646 standards for performance and long-term reliability of thin film solar modules.

In February 2010, three of our product configurations were certified by an independent laboratory on a variety of U.S. Department of Defense (“DOD”) rugged standards known as MIL-STD-810G. In October 2010, we completed full external certification under IEC 61646 at an independent laboratory of a two-meter module. Achieving this certification is required for building integrated photovoltaic ("BIPV") and building applied photovoltaic ("BAPV") applications used in commercial, industrial and residential rooftop markets. Certification activities will continue as required as we introduce new products and make changes or improvements to our already certified products.

In 2010, we received an award from R&D Magazine and were recognized as one of the 100 Most Innovative Technologies based on our process of monolithic integration on polyimide substrate. In 2011, Time Magazine selected us as one of the 50 Best Inventions of the year. In 2015 Ascent Solar won its second R&D 100 Award. The 2015 award was given for the development of the MilPak™ platform, a military-grade (MIL-STD-810G tested) and fully integrated solar power generation and storage unit incorporated with a Maximum Peak Power Tracking (MPPT) management system. The MilPak platform is one of the most rugged, yet lightweight, power generation and storage solutions available, both attributes enabled by the use of Ascent's CIGS technology.

In 2012, we evolved our business model to include B2C, solution based, PV integrated consumer electronics to complement our off grid high value solar power generation strategy. From 2012 to 2015, we launched a series of new lines of consumer products under the EnerPlex™ brand. From 2012 through 2017, we aggressively expanded our consumer business with multiple product introductions and pursuing multiple retail distribution channels.

In February 2017, we announced the discontinuation of our EnerPlex consumer business by disposing of the EnerPlex brand, and related intellectual properties and trademarks, to our battery product supplier, Sun Pleasure Co. Limited ("SPCL"). This transaction was completed in an effort to better allocate our resources and to continue to focus on our core strength in the high-value specialty PV market. Following this transfer, Ascent ceased producing or selling Enerplex-branded consumer products.

In January 2017, Ascent was awarded a contract to supply high-voltage SuperLight thin-film CIGS PV blankets. These 50W, fully laminated, flexible blankets were manufactured using a new process that was optimized for high performance in near-space conditions at elevated temperatures, and are custom designed for easy modular integration into series and parallel configurations to achieve the desired voltage and current required for such application.

During the third quarter of 2017, Ascent Solar was selected by Energizer Solar Inc. to develop and supply solar panels for their PowerKeep line of solar products, and in November 2017, Ascent introduced the next generation of our USB-based portable power systems with the XD™ series. The first product introduced was the XD-12 which, like previous products, is a folding, lightweight, easily stowable, PV system with USB power regulation. Unique to this generation of PV portable power is more PV power (12 Watts) and a 2.0 Amp smart USB output to enable the XD-12 to charge most smartphones, tablets, and USB-enabled devices as fast as a wall outlet. The enhanced smart USB circuit works with the device to be charged so that the device can determine the maximum power it is able to receive from the XD-12 and ensures the best possible charging performance directly from the sun.

Also, in 2017, for a space customer, Ascent manufactured a new micro-module, approximately 12.8mm x 50mm (0.5in x 2.0in) in size that is ideal for both laboratory-scale environmental testing, and for subsequent integration into flight experiments.

In February 2018, the Company introduced the second product in our XD series. Delivering up to 48 Watts of solar power, the durable and compact Ascent XD-48 Solar Charger is the ideal solution for charging many portable electronics and off-grid power systems. The XD-48's versatility allows it to charge both military and consumer electronics directly from the sun wherever needed. Like the XD-12, the XD-48 has a compact and portable design, and its rugged, weather-resistant construction withstands shocks, drops, damage and even minor punctures to power through the harshest conditions.

In March 2018, Ascent successfully shipped to a European based customer for a lighter-than-air, helium-filled airship project based on our newly developed ultra-light modules with substrate material than half of the thickness of our standard modules. In 2019, Ascent completed a repeat order from the same customer who had since established its airship development operation in the US. In 2020, Ascent received a third and enlarged order from the same customer and is scheduled to complete the order by the second quarter of 2021.

We continue to design and manufacture PV integrated portable power applications for commercial and military users. Due to the high durability enabled by the monolithic integration employed by our technology, the capability to customize modules into different form factors and the industry leading light weight and flexibility provided by our modules, we believe that the potential applications for our products are extensive.

Commercialization and Manufacturing Strategy

We manufacture our products by affixing a thin CIGS layer to a flexible, plastic substrate using a large format, roll-to-roll process that permits us to fabricate our flexible PV modules in an integrated sequential operation. We use proprietary monolithic integration techniques which enable us to form complete PV modules with little to no costly back end assembly of inter cell connections. Traditional PV manufacturers assemble PV modules by bonding or soldering discrete PV cells together. This manufacturing step typically increases manufacturing costs and at times proves detrimental to the overall yield and reliability of the finished product. By reducing or eliminating this added step using our proprietary monolithic integration techniques, we believe we can achieve cost savings in, and increase the reliability of, our PV modules. All tooling necessary for us to meet our near-term production requirements is installed in our Thornton, Colorado plant. In 2012, we further revised our strategy to focus on applications for emerging and high-value specialty PV markets, including off grid, aerospace, military and defense and consumer-oriented products.

We plan to continue the development of our current PV technology to increase module efficiency, improve our manufacturing tooling and process capabilities and reduce manufacturing costs. We also plan to continue to take advantage of research and development contracts to fund a portion of this development.

Advantages of CIGS on a Flexible Plastic Substrate

Thin film PV solutions differ based on the type of semiconductor material chosen to act as a sunlight absorbing layer, and also on the type of substrate on which the sunlight absorbing layer is affixed. To the best of our knowledge, we believe we are the only company in the world currently focused on commercial scale production of PV modules using CIGS on a flexible, plastic substrate with monolithic integration. We utilize CIGS as a semiconductor material because, at the laboratory level, it has a higher demonstrated cell conversion efficiency than amorphous silicon ("a-Si") and cadmium telluride ("CdTe"). We also believe CIGS offers other compelling advantages over both a-Si and CdTe, including:

- *CIGS versus a-Si:* Although a-Si, like CIGS, can be deposited on a flexible substrate, its conversion efficiency, which already is generally much lower than that of CIGS, measurably degrades when it is exposed to ultraviolet light, including natural sunlight. To mitigate such degradation, manufacturers of a-Si solar cells are required to implement measures that add cost and complexity to their manufacturing processes.

- *CIGS versus CdTe:* Although CdTe modules have achieved conversion efficiencies that are generally comparable to CIGS in production, we believe CdTe has never been successfully applied to a flexible substrate on a commercial scale. We believe the use of CdTe on a rigid, transparent substrate, such as glass, makes CdTe unsuitable for a number of the applications. We also believe CIGS can achieve higher conversion efficiencies than CdTe in production.

Our choice of substrate material further differentiates us from other thin film PV manufacturers. We believe the use of a flexible, lightweight, insulating substrate that is easier to install provides clear advantages for our target markets, especially where rigid substrates are unsuitable. We also believe our use of a flexible, plastic substrate provides us significant cost advantages because it enables us to employ monolithic integration techniques on larger components, which we believe are unavailable to manufacturers who use flexible, metal substrates. Accordingly, we are able to significantly reduce part count, thereby reducing the need for costly back end assembly of inter cell connections. As the only company, to our knowledge, focused on the commercial production of PV modules using CIGS on a flexible, plastic substrate with monolithic integration, we believe we have the opportunity to address the consumer electronics, defense, aerospace, transportation, off grid, portable power and other weight-sensitive markets with transformational high quality, value added product applications. It is these same unique features and our overall manufacturing process that enables us to produce consumer products that enables our consumer products to be extremely robust, light and flexible.

Competitive Strengths

We believe we possess a number of competitive strengths that provide us with an advantage over our competitors.

- ***We are a pioneer in CIGS technology with a proprietary, flexible, lightweight, high efficiency PV thin film product that positions us to penetrate a wide range of attractive high value added markets such as consumer products, off grid, portable power, transportation, defense, aerial, and other markets.*** By applying CIGS to a flexible plastic substrate, we have developed a PV module that is efficient, lightweight and flexible; with the highest power-to-weight ratio in at-scale commercially available solar. The market for electronic components, such as electronic packages, casings and accessories, as well as defense portable power systems, transportation integrated applications and space and near-space solar power application solutions represent a significant premium market for the company. Relative to our thin film competitors, we believe our advantage in thin film CIGS on plastic technology provides us with a superior product offering for these strategic market segments.

- ***We have the ability to manufacture PV modules for different markets and for customized applications without altering our production processes.*** Our ability to produce PV modules in customized shapes and sizes, or in a variety of shapes and sizes simultaneously, without interrupting production flow, provides us with flexibility in addressing target markets and product applications, and allows us to respond quickly to changing market conditions. Many of our competitors are limited by their technology and/or their manufacturing processes to a more restricted set of product opportunities.

- ***Our integrated, roll-to-roll manufacturing process and proprietary monolithic integration techniques provide us a potential cost advantage over our competitors.*** Historically, manufacturers have formed PV modules by manufacturing individual solar cells and then interconnecting them. Our large format, roll-to-roll manufacturing process allows for integrated continuous production. In addition, our proprietary monolithic integration techniques allow us to utilize laser patterning to create interconnects, thereby creating PV modules at the same time we create PV cells. In so doing, we are able to reduce or eliminate an entire back end processing step, saving time as well as labor and manufacturing costs relative to our competitors.

- ***Our lightweight, powerful, and durable solar panels provide a performance advantage over our competitors.*** For consumer applications where a premium is placed on the weight and profile of the product, our ability to integrate our PV modules into portable packages and cases offers the customer a lightweight and durable solution for all their portable electronics.

- ***Our proven research and development capabilities position us to continue the development of next generation PV modules and technologies.*** Our ability to produce CIGS based PV modules on a flexible plastic substrate is the result of a concerted research and development effort that began more than twenty years ago. We continue to pursue research and development in an effort to drive efficiency improvements in our current PV modules and to work toward next generation technologies and additional applications.

- ***Our manufacturing process can be differentiated into two distinct functions; a front-end module manufacturing process and a back-end packaging process.*** Our ability to produce finished unpackaged rolls of CIGS material for shipment worldwide to customers for encapsulation and integration into various products enhances our ability to work with partners internationally and domestically.

Markets and Marketing Strategy

In 2012, we pivoted our strategic focus away from large scale utility projects and rooftop applications to consumer products and high-value specialty solar markets. This new strategy enables us to fully leverage the unique advantages of our technology including flexibility, durability and attractive power to weight and power to area performance. It further enables us to offer unique, differentiated solutions in large markets with less competition, and more attractive pricing. In the second half of 2012, we launched our EnerPlex line of personal power, portable solar solutions and accessories. This represented a significant paradigm shift for us and moved us into the realm of supplying complete consumer product solutions as opposed to strictly commercial solar modules. We also remain focused on specialty solar applications which can fully leverage the unique properties of our award-winning CIGS technology. These include aerospace, defense, emergency management and consumer/OEM applications.

In February 2017 Ascent announced the discontinuation of our EnerPlex consumer business by disposing of the EnerPlex brand, and related intellectual properties and trademarks, to our battery product supplier, in an effort to better allocate our resources and to continue to focus on our core strength in the high-value specialty PV market. Ascent no longer produces or sells Enerplex-branded consumer products and we are instead focused on our photovoltaic business.

Ascent's strategic marketing efforts since 2017 have been focused on commercializing our proprietary solar technology in three highest-value PV verticals:

I. Aerospace: Space, Near-space and Fixed Wing UAV
II. Public Sector: Defense and Emergency Management
III. Commercial Off-grid and Portable Power

The value proposition of Ascent's proprietary solar technology not only aligns with the needs of customers in these verticals, but also overcomes many of the obstacles other solar technologies face in these unique markets.

Ascent has the capability to design and develop finished products for end users in these areas as well as collaborate with strategic partners to design and develop custom integrated solutions for products like airships and fixed-wing UAVs. Ascent sees significant overlap in the needs of end users across some of these verticals and can achieve economies of scale in sourcing, development, and production in commercializing products for these customers.

The integration of Ascent's solar modules into space, near space, and aeronautic vehicles with ultra-lightweight and flexible solar modules is an important market opportunity for the Company. Customers in this market have historically required a high level of durability, high voltage and conversion efficiency from solar module suppliers, and we believe our products are well suited to compete in this premium market. In May 2014, together with our partners, Silent Falcon UAS Technologies and Bye Aerospace, we announced the successful first flight of a production version of the Silent Falcon™ Unmanned Aircraft Systems, powered by Ascent's ultra-lightweight, flexible PV modules. In July 2014, our ultra-lightweight, flexible PV modules were selected by Vanguard Space Technologies for their NASA Small Business Innovative Research program. The NASA program is intended to develop an economical, lightweight alternative to existing and emerging high-cost solar arrays for high-power space applications. We expect opportunities in this segment to develop rapidly due to customers' extensive development, testing and evaluation processes.

In March 2016, the Company announced a major breakthrough of our high-voltage superlight modules, achieving a power-to-weight ratio of 1,700 watts per kilogram at AM0 environment. In December 2016, Ascent was selected by the Japan Aerospace Exploration Agency ("JAXA") as part of their next round of evaluations for providing solar technology for an upcoming mission to Jupiter, as well as to address additional missions. This decision followed an earlier round of investigation with promising results, during which the Company's flexible, monolithically integrated CIGS solar module was subjected to environmental extremes and continued to operate well. During the first phase of JAXA's evaluation, Ascent's PV was successfully tested below -146°C (-231°F) and up to +190°C (+374 °F), and to only 4% of the sunlight generally received in earth's orbit. In addition, JAXA has subjected Ascent's PV to radiation and mechanical testing.

In 2017 we continued to solidify our position in the space and near-space markets; these challenging requirements and environments allow for the full utilization of the unique nature and advantages of our lightweight, flexible monolithically integrated CIGS PV. Through continued work in the PV-powered drone field, Ascent made significant strides in providing PV power to high-altitude airships and next-generation space applications.

In January 2017, Ascent was awarded a contract to supply high-voltage SuperLight thin-film CIGS PV blankets. These 50W, fully laminated, flexible blankets were manufactured using a new process that was optimized for high performance in near-space conditions at elevated temperatures, and are custom designed for easy modular integration into series and parallel configurations to achieve the desired voltage and current required for such application.

In November 2017, Ascent fulfilled a third order from JAXA for custom PV products designed specifically for their upcoming solar sail deployment demonstration project. This project was comprised of small area test cells and large, 19.5cm x 30cm monolithically integrated modules, all on a very thin, 25-micron (0.001 inch) plastic substrate which is half the thickness of Ascent's production substrate for a standard product. In space, near-space, and drone applications, the PV substrate accounts for a significant portion of the product's overall mass; the PV construction on the new 25-micron substrates represents a major breakthrough for these markets. JAXA placed this order after achieving the desired experimental results from the previous shipments and subsequent electrical, mechanical and environmental testing. The 19.5cm x 30cm module is a custom design to match the anticipated deployment mechanism and PV layout for the final Jovian spacecraft.

Also in 2017, Ascent fulfilled a new order, with another repeat space customer, to manufacture a new micro-module, approximately 12.8mm x 50mm (0.5in x 2.0in) in size that is ideal for both laboratory-scale environmental testing, and for subsequent integration into flight experiments.

In 2015 Ascent Solar won its second R&D 100 Award, the 2015 award was given for the development of the MilPak platform, a military-grade solar power generation and storage unit. The MilPak platform is one of the most rugged, yet lightweight, power generation and storage solutions available, both attributes enabled by the use of Ascent's CIGS technology.

The military market has a unique set of requirements we believe are well suited to our products. When integrated with fabric to form re-deployable arrays, our highly efficient, rugged, lightweight modules may allow soldiers to minimize battery loads, reduce the use of conventional fuels, and increase safety through the streamlining of fuel transport operations, providing the front-line units with maximum resilience and helping to increase operational efficiency. We are also working to expand our foldable line of outdoor solar chargers, such as the XD-12 and the XD-48, which are well suited for the individual soldier or for the bigger power needs of a platoon with the ability of several chargers to be strung together. Our modules can also provide a reliable source of renewable power in remote areas, regardless of local infrastructure. We will continue to reach the military market through partnerships with top systems providers, by providing Government Service Administration Letters of Supply, and through direct sales and other blanket purchase agreements with the government.

Transportation integrated PV, or integration of our flexible solar modules with vehicles such as commercial trucks, buses, trains and passenger cars, is another market segment that represents a significant opportunity. Due to their flexible form and durable, lightweight properties, our modules can be fitted to the exterior of various vehicles to provide supplemental power without significantly affecting the aerodynamics, weight or aesthetics of the vehicle. We are currently working with multiple integrators and OEMs to develop effective value-added solutions for this market.

During the third quarter of 2017, Ascent Solar demonstrated its breadth of capabilities at the US Special Operations Command ("SOCOM") exclusive Technical Experimentation ("TE") 17-3 Event in Washington, DC. SOCOM is tasked, by the Department of Defense ("DoD"), with providing Special Operations Forces ("SOF") with the latest war fighting technology available; in support of this effort, SOCOM sponsors an annual TE event. In July of 2017 SOCOM requested the participation of companies who have proficiency in the areas of Satellite Communication ("SATCOM") and Unattended Ground Sensors ("UGS") for a TE event. Over 30 companies were selected to participate, and Ascent Solar was one of only 2 companies selected to participate who didn't actually make SATCOM or UGS products. Ascent Solar was selected on the basis and recognition that one of the primary issues facing the DoD today is the ability to power all of their war fighting technology. Ascent's diverse line-up of rugged and lightweight portable solar products offers the potential for the DoD to generate unattended ongoing power, which could save lives and increase the efficiency of the war fighting effort. Ascent was honored to be chosen to participate, and the assessed score we received is indicative of a capability that has "high potential for SOF use with few limitations".

During the third quarter of 2018, Ascent Solar was once again selected to demonstrate its breadth of capabilities at the SOCOM exclusive TE 18-3 Event in Washington, DC. In July of 2018, SOCOM requested the participation of companies who have proficiency in the areas of Intelligence, Surveillance and Reconnaissance (ISR), Small Unmanned Aerial Systems (SUAS) and Mobility for the TE event. Over 50 companies were selected to participate, and Ascent Solar was one of only 2 companies selected for a second straight year.

We continue to supply our strategic partners with PV modules to support their development, testing and certification of new integrated PV products, including product testing by several branches of the U.S. military. We believe that our high-power density flexible solar modules enable new applications for solar power. By creating mutually beneficial partnerships and strategically penetrating the markets discussed above, we plan to transform the landscape of solar power generation with truly innovative end products.

Competition

We have pivoted our strategic focus away from large scale utility projects of the traditional solar markets. We believe our thin film, monolithically integrated CIGS technology enables us to deliver sleek, lightweight, rugged, high performance solutions to serve these markets as competitors from other thin film and c-Si companies emerge. The landscape of thin film manufacturers encompasses a broad mix of technology platforms at various stages of development and consists of a number of medium and small companies.

The market for traditional, grid connected PV products is dominated by large manufacturers of c-Si technology, although thin film technology on glass has begun to emerge among the major players. We anticipate that while these large manufacturers may continue to dominate the market with their silicon-based products, thin film manufacturers will likely capture an increasingly larger share of the market, as is evident from the success of First Solar (CdTe) and Solar Frontier (CIGS), both among the top 20 producers worldwide. In 2019, crystalline silicon PV technology represented over 90% of global market revenue and production, with the balance captured by thin film. Approximately half of thin film production is CdTe production, with the other half being split between CIGS and a-Si.

We believe that our modules offer unique advantages. Their flexibility, low areal density (mass per unit area), and high specific power (power per unit mass) enable use on weight-sensitive applications, such as portable power, conformal aircraft surfaces, high altitude long endurance (HALE) fixed wing and lighter than air (LTA) vehicles, and space applications that are unsuitable for glass-based modules. Innovative product design, customer focused development, and our rapid prototyping capability yield modules that could be integrated into virtually any product to create a source of renewable energy. Whether compared to glass based or other flexible modules, our products offer competitive advantages making them unique in comparison to competing products.

Research and Development and Intellectual Property

We intend to continue to invest in research and development in order to provide near term improvements to our manufacturing process and products, as well as to identify next generation technologies relevant to both our existing and potential new markets. During 2020 and 2019 we incurred approximately $1,165,193 and $1,310,948, respectively, in research and development costs, which include research and development incurred in relation to our government contracts, as well as manufacturing costs incurred while developing our product lines and manufacturing process.

Our technology was initially developed at ITN beginning in 1994. In early 2006, ITN assigned to us certain CIGS PV-specific technologies, and granted to us a perpetual, exclusive, royalty free, worldwide license to use these technologies in connection with the manufacture, development, marketing and commercialization of CIGS PV to produce solar power. In addition, certain of ITN's existing and future proprietary process and control technologies, although nonspecific to CIGS PV, were assigned to us. ITN retained the right to conduct research and development activities in connection with PV materials, and we agreed to grant a license back to ITN for improvements to the licensed technologies and intellectual property outside of the CIGS PV field.

We protect our intellectual property through a combination of trade secrets and patent protections. We own the following patents and published patent applications:

Issued Patents and Registrations

1. US Patent No. 8,426,725 entitled "Apparatus and Method for Hybrid Photovoltaic Device Having Multiple, Stacked, Heterogeneous, Semiconductor Junctions" (issued April 23, 2013)

2. US Patent No. 8,465,589 entitled "Machine and Process for Sequential Multi-Sublayer Deposition of Copper Indium Gallium Diselenide Compound Semiconductors" (issued June 18, 2013)

3. US Patent No. D697,502 entitled "Mobile Electronic Device Case" (issued January 14, 2014)

4. US Patent No. 8,648,253 entitled "Machine and Process for Continuous, Sequential, Deposition of Semiconductor Solar Absorbers Having Variable Semiconductor Composition Deposited in Multiple Sublayers" (issued February 11, 2014)

5. US Patent No. D781,228 entitled Pocket-Sized Photovoltaic Based Fully Integrated Portable Power System (issued March 14, 2017)

6. US Patent No. 9601650 entitled Machine and Process for Continuous, Sequential, Deposition of Semiconductor Solar Absorbers Having Variable Semiconductor Composition Deposited in Multiple Sublayers (issued March 21, 2017)

7. US Patent No. 9634175 entitled Systems and Methods for Thermally Managing High-Temperature Processes on Temperature Sensitive Substrates (issued April 25, 2017)

8. US Patent No. 9640706 entitled Hybrid Multi-Junction Photovoltaic Cells and Associated Methods (issued May 2, 2017)

9. US Patent No. 9640692 entitled Flexible Photovoltaic Array with Integrated Wiring and Control Circuitry, and Associated Methods (issued May 2, 2017)

10. US Patent No. 9653635 entitled Flexible High-Voltage Adaptable Current Photovoltaic Modules and Associated Methods (issued May 16, 2017)

11. US Patent No. 9780242 entitled "Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates" (issued October 3, 2017)

Published Patent Applications

1. "Flexible Photovoltaic Array with Integrated Wiring and Control Circuitry, and Associated Methods" (US 12/901,963) (filed October 11, 2010) (co-owned with PermaCity Corporation)

2. "Cd-Free, Oxide Buffer Layers for Thin Film CIGS Solar Cells by Chemical Solution Deposition Methods" (US 13/227,935) (filed September 8, 2011)

3. “Systems and Processes for Bifacial Collection and Tandem Junctions Using a Thin film Photovoltaic Device” (US 13/406,376) (filed February 27, 2012)

4. “Multilayer Thin Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates” (US 13/572,387) (filed August 10, 2012)

5. “Multilayer Thin Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates” (PCT/US2012/050398) (filed August 10, 2012)

6. “Multilayer Thin Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates” (CN 201280047345.1) (filed August 10, 2012)

7. “Apparatus and Method for Hybrid Photovoltaic Device Having Multiple, Stacked, Heterogeneous, Semiconductor Junctions” (EP 11804861.0) (filed December 13, 2011)

8. “Apparatus and Method for Hybrid Photovoltaic Device Having Multiple, Stacked, Heterogeneous, Semiconductor Junctions” (CN 201180067131.6) (filed December 13, 2011)

9. “Subtractive Hinge and Associated Methods (US 13/783,336) (filed March 3, 2013)

10. “Subtractive Hinge and Associated Methods (PCT/US 2013/28,929) (filed March 4, 2013)

11. “Subtractive Hinge and Associated Methods (CN 201380012566.X) (filed March 4, 2013)

12. “Subtractive Hinge and Associated Methods (EP 13758462.9) (filed March 4, 2013)

13. “System for Housing and Powering A Battery-Operated Device and Associated Methods” (US 13/802,713) (filed March 14, 2013)

14. “System for Housing and Powering A Battery-Operated Device and Associated Methods” (US 13/802,719) (filed March 14, 2013)

15. “System for Housing and Powering A Battery-Operated Device and Associated Methods” (PCT/US2013/34988) (filed April 2, 2013)

16. “Photovoltaic Assembly and Associated Methods” (US 14/038096) (filed September 26, 2013)

17. “Photovoltaic Assembly and Associated Methods” (PCT/US2013/62355) (filed September 27, 2013)

18. “Photovoltaic Assembly and Associated Methods” (CN 201380060351.5) (filed September 27, 2013)

19. “Photovoltaic Assembly and Associated Methods” (EP 13840976.8) (filed September 27, 2013)

20. “Flexible High-Voltage Adaptable Current Photovoltaic Modules and Associated Methods” (US 14/041,886) (filed September 30, 2013)

21. “Hybrid Multi-Junction Photovoltaic Cells and Associated Methods” (US 14/100,960) (filed December 9, 2013)

22. “System for Housing and Powering A Battery-Operated Device and Associated Methods” (PCT/US2013/74936) (filed December 13, 2013)

23. “Systems and Methods for Thermally Managing High-Temperature Processes on Temperature Sensitive Substrates” (US 14/150,376) (filed January 8, 2014)

24. “Systems and Methods for Thermally Managing High-Temperature Processes on Temperature Sensitive Substrates” (PCT/US2014/10867) (filed January 8, 2014)

25. “Systems and Methods for Thermally Managing High-Temperature Processes on Temperature Sensitive Substrates” (CN 201480004408.4) (filed January 8, 2014)

26. “Systems and Methods for Thermally Managing High-Temperature Processes on Temperature Sensitive Substrates” (EP 14738271.7) (filed January 8, 2014)

27. “Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates” (PCT/US15/20184) (filed March 12, 2015)

28. “Array of Monolithically Integrated Thin Film Photovoltaic Cells and Associated Methods” (14/252,485) (filed April 14, 2014)

29. “Subtractive Hinge and Associated Methods” (EP 13758462.9) (filed March 4, 2013)

30. “Photovoltaic Assembly and Associated Methods” (EP 13840976.8) (filed September 27, 2013)

31. “Systems and Methods for Thermally Managing High-Temperature Processes on Temperature Sensitive Substrates” (CN 201480004408.4) (filed January 9, 2014)

32. “Systems and Methods for Thermally Managing High-Temperature Processes on Temperature Sensitive Substrates” (EP 14738271.7) (filed January 9, 2014)

33. “Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates” (US 14/932,933) (filed November 4, 2015)

34. “Photovoltaic-Based Fully Integrated Portable Power Systems” (PCT/US16/12047) (filed January 4, 2016)

35. “Photovoltaic-Based Fully Integrated Portable Power System” (US 14/987,214) (filed January 4, 2016)

36. “Systems and Processes for Bifacial Collection and Tandem Junctions Using a Thin-Film Photovoltaic Device” (US 15/099,835) (filed April 15, 2016)

37. “Photovoltaic-Based Fully Integrated Portable Power Management and Networking System” (PCT/US16/25647) (filed April 1, 2016)

38. “Photovoltaic-Based Fully Integrated Portable Power Management and Networking System” (US 15/089,028) (filed April 1, 2016)

39. “Photovoltaic Device and Method of Manufacturing Same” (CN 201610416638.2) (filed December 13, 2011)

40. “Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates” (US 15/258,169) (filed September 7, 2016)

41. “Hybrid Multi-Junction Photovoltaic Cells and Associated Methods” (US 15/137,696) (filed April 25, 2016)

42. “Machine and Process for Continuous, Sequential, Deposition Of Semiconductor Solar Absorbers Having Variable Semiconductor Composition Deposited In Multiple Sublayers” (US 15/584,241) (filed May 2, 2017)

43. “Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates” (GB 12759843.1) (Filed August 10, 2012)

44. “Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates” (WO PCT/US16/58933) (Filed October 26, 2016)

45. “Subtractive Hinge and Associated Methods” (US 15/673,283) (Filed August 9, 2017)

Ascent Solar has trademark applications and registrations in the United States and worldwide for slogans and product family names such as WaveSol, MilPak, and Transforming Everyday Life.

Depending on country laws, the marks listed above may include the ™ or ® symbols.

Suppliers

We rely on several unaffiliated companies to supply certain raw materials used during the fabrication of our PV modules and PV integrated electronics. We acquire these materials on a purchase order basis and do not have long term purchase quantity commitments with the suppliers, although we may enter into such contracts in the future. We currently acquire all of our high temperature plastic from one supplier, although alternative suppliers of similar materials exist. We purchase component molybdenum, copper, indium, gallium, selenium and indium tin oxides from a variety of suppliers. We also currently are in the process of identifying and negotiating arrangements with alternative suppliers of materials in the United States and Asia.

The manufacturing equipment and tools used in our production process have been purchased from various suppliers in Europe, the United States and Asia. Although we have had good relations with our existing equipment and tools suppliers, we monitor and explore opportunities for developing alternative sources to drive our manufacturing costs down.

Employees

As of December 31, 2020, we had 19 full-time and 10 part-time employees.

Company History

We were formed in October 2005 from the separation by ITN of its Advanced Photovoltaic Division and all of that division's key personnel and core technologies. ITN, a private company incorporated in 1994, is an incubator dedicated to the development of thin film, PV, battery, fuel cell and nanotechnologies. Through its work on research and development contracts for private and government entities, ITN developed proprietary processing and manufacturing know-how applicable to PV products generally, and to CIGS PV products in particular. Our company was established by ITN to commercialize its investment in CIGS PV technologies. In January 2006, ITN assigned to us all its CIGS PV technologies and trade secrets and granted to us a perpetual, exclusive, royalty free worldwide license to use certain of ITN's proprietary process, control and design technologies in the production of CIGS PV modules. Upon receipt of the necessary government approvals in January 2007, ITN assigned government funded research and development contracts to us and also transferred the key personnel working on the contracts to us.

Corporate Information

We were incorporated under the laws of Delaware in October 2005. Our principal business office is located at 12300 Grant Street, Thornton, Colorado 80241, and our telephone number is (720) 872-5000. Our website address is *www.AscentSolar.com*. Information contained on our website or any other website does not constitute, and should not be considered, part of this Annual Report.

Available Information

We file with the Securities and Exchange Commission ("SEC") our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and all amendments to those reports, proxy statements and registration statements. You may read and copy any material we file with the SEC at the SEC's Public Reference Room at 100 F Street, NE, Washington, D.C. 20549. You may also obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. In addition, the SEC maintains an internet site at http://www.sec.gov that contains reports, proxy and information statements, and other information regarding issuers, including us, that file electronically. We make available free of charge on, or through, our website at *www.ascentsolar.com* our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to these reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended ("Exchange Act") as soon as reasonably practicable after we file these materials with the SEC.

Item 1A. Risk Factors

The risks included here are not exhaustive or exclusive. Other sections of this Annual Report may include additional factors which could adversely affect our business, results of operations and financial performance. We operate in a very competitive and rapidly changing environment. New risk factors emerge from time to time, and it is not possible for management to predict all such risk factors, nor can it assess the impact of all such risk factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements. Given these risks and uncertainties, investors should not place undue reliance on forward-looking statements as a prediction of actual results.

Risks related to the Coronavirus and COVID-19 Pandemic

An occurrence of an uncontrollable event such as the COVID-19 pandemic may negatively affect our operations. The COVID-19 pandemic in the United States and world-wide has caused business disruption which may negatively impact the Company's operations and financial results. Public health officials have recommended and mandated precautions to mitigate the spread of COVID-19, including prohibitions on travel, congregating in heavily populated areas and stat-at-home orders or similar measures. While the disruption is currently expected to be temporary, there is considerable uncertainty around the duration of the pandemic in the United States and world-wide. Our entire business may be adversely impacted by actions taken to contain or treat the impact of COVID-19. The extent of such impact will depend on future developments, which are highly uncertain and cannot be predicted. The impact of COVID-19 on our operations and financial results, therefore, cannot be reasonably estimated at this time.

Risks Relating to Our Business

We have a limited history of operations, have not generated significant revenue from operations and have had limited production of our products. We have a limited operating history and have generated limited revenue from operations. Currently we are producing products in quantities necessary to meet current demand. Under our current business plan, we expect losses to continue until annual revenues and gross margins reach a high enough level to cover operating expenses. Our ability to achieve our business, commercialization and expansion objectives will depend on a number of factors, including whether:

- We can generate customer acceptance of and demand for our products;
- We successfully ramp up commercial production on the equipment installed;
- Our products are successfully and timely certified for use in our target markets;
- We successfully operate production tools to achieve the efficiencies, throughput and yield necessary to reach our cost targets;
- The products we design are saleable at a price sufficient to generate profits;
- We raise sufficient capital to enable us to reach a level of sales sufficient to achieve profitability on terms favorable to us;
- We are able to successfully design, manufacture, market, distribute and sell our products;
- We effectively manage the planned ramp up of our operations;
- We successfully develop and maintain strategic relationships with key partners, including OEMs, system integrators and distributors, retailers and e-commerce companies, who deal directly with end users in our target markets;
- Our ability to maintain the listing of our common stock on the OTC Market;
- Our ability to achieve projected operational performance and cost metrics;
- Our ability to enter into commercially viable licensing, joint venture, or other commercial arrangements; and

- The availability of raw materials.

Each of these factors is critical to our success and accomplishing each of these tasks may take longer or cost more than expected or may never be accomplished. It also is likely that problems we cannot now anticipate will arise. If we cannot overcome these problems, our business, results of operations and financial condition could be materially and adversely affected.

We have to date incurred net losses and may be unable to generate sufficient sales in the future to become profitable. We incurred a net loss of $1,617,444 for the year ended December 31, 2020 and reported an accumulated deficit of $421,782,785 as of December 31, 2020. We expect to incur net losses in the near term. Our ability to achieve profitability depends on a number of factors, including market acceptance of our specialty PV products at competitive prices. If we are unable to raise additional capital and generate sufficient revenue to achieve profitability and positive cash flows, we may be unable to satisfy our commitments and may have to discontinue operations.

Our business is based on a new technology, and if our PV modules or processes fail to achieve the performance and cost metrics that we expect, then we may be unable to develop demand for our PV modules and generate sufficient revenue to support our operations. Our CIGS on flexible plastic substrate technology is a relatively new technology. Our business plan and strategies assume that we will be able to achieve certain milestones and metrics in terms of throughput, uniformity of cell efficiencies, yield, encapsulation, packaging, cost and other production parameters. We cannot assure you that our technology will prove to be commercially viable in accordance with our plan and strategies. Further, we or our strategic partners and licensees may experience operational problems with such technology after its commercial introduction that could delay or defeat the ability of such technology to generate revenue or operating profits. If we are unable to achieve our targets on time and within our planned budget, then we may not be able to develop adequate demand for our PV modules, and our business, results of operations and financial condition could be materially and adversely affected.

Our failure to further refine our technology and develop and introduce improved PV products could render our PV modules uncompetitive or obsolete and reduce our net sales and market share. Our success requires us to invest significant financial resources in research and development to keep pace with technological advances in the solar energy industry. However, research and development activities are inherently uncertain, and we could encounter practical difficulties in commercializing our research results. Our expenditures on research and development may not be sufficient to produce the desired technological advances, or they may not produce corresponding benefits. Our PV modules may be rendered obsolete by the technological advances of our competitors, which could harm our results of operations and adversely impact our net sales and market share.

Failure to expand our manufacturing capability successfully at our facilities would adversely impact our ability to sell our products into our target markets and would materially and adversely affect our business, results of operations and financial condition. Our growth plan calls for production and operation at our facility. Successful operations will require substantial engineering and manufacturing resources and are subject to significant risks, including risks of cost overruns, delays and other risks, such as geopolitical unrest that may cause us not to be able to successfully operate in other countries. Furthermore, we may never be able to operate our production processes in high volume or at the volumes projected, make planned process and equipment improvements, attain projected manufacturing yields or desired annual capacity, obtain timely delivery of components, or hire and train the additional employees and management needed to scale our operations. Failure to meet these objectives on time and within our planned budget could materially and adversely affect our business, results of operations and financial condition.

We may be unable to manage the expansion of our operations and strategic alliances effectively. We will need to significantly expand our operations and form beneficial strategic alliances in order to reduce manufacturing costs through economies of scale and partnerships, secure contracts of commercially material amounts with reputable customers and capture a meaningful share of our target markets. To manage the expansion of our operations and alliances, we will be required to improve our operational and financial systems, oversight, procedures and controls and expand, train and manage our growing employee base. Our management team will also be required to maintain and cultivate our relationships with partners, customers, suppliers and other third parties and attract new partners, customers and suppliers. In addition, our current and planned operations, personnel, facility size and configuration, systems and internal procedures and controls, even when augmented through strategic alliances, might be inadequate or insufficient to support our future growth. If we cannot manage our growth effectively, we may be unable to take advantage of market opportunities, execute our business strategies or respond to competitive pressures, resulting in a material and adverse effect to our business, results of operations and financial condition.

We depend on a limited number of third-party suppliers for key raw materials, and their failure to perform could cause manufacturing delays and impair our ability to deliver PV modules to customers in the required quality and quantity and at a price that is profitable to us. Our failure to obtain raw materials and components that meet our quality, quantity and cost requirements in a timely manner could interrupt or impair our ability to manufacture our products or increase our manufacturing cost. Most of our key raw materials are either sole sourced or sourced by a limited number of third-party suppliers. As a result, the failure of any of our suppliers to perform could disrupt our supply chain and impair our operations. Many of our suppliers are small companies that may be unable to supply our increasing demand for raw materials as we implement our planned expansion. We may be unable to identify new suppliers in a timely manner or on commercially reasonable terms. Raw materials from new suppliers may also be less suited for our technology and yield PV modules with lower conversion efficiencies, higher failure rates and higher rates of degradation than PV modules manufactured with the raw materials from our current suppliers.

Our continuing operations will require additional capital which we may not be able to obtain on favorable terms, if at all, or without dilution to our stockholders. Since inception, we have incurred significant losses. We expect to continue to incur net losses in the near term. For the year ended December 31, 2020, our cash used in operations was $2,881,138. At December 31, 2020, we had cash and equivalents on hand of $167,725.

Although we have commenced production at our manufacturing facility, we do not expect that sales revenue and cash flows will be sufficient to support operations and cash requirements until we have fully implemented our new strategy of focusing on high value PV products. Product revenues did not result in a positive cash flow for the 2020 year. The Company will need to raise additional capital in order to continue our current level of operations throughout 2021.

To the extent that we may need to raise additional capital in the future there is no assurance that we will be able to raise additional capital on acceptable terms or at all. If we raise additional funds through the issuance of equity or convertible debt securities, the percentage ownership of our existing stockholders could be significantly diluted, and these newly issued securities may have rights, preferences or privileges senior to those of existing stockholders. If we raise additional funds through debt financing, which may involve restrictive covenants, our ability to operate our business may be restricted. If adequate funds are not available or are not available on acceptable terms, if and when needed, our ability to fund our operations, take advantage of unanticipated opportunities, develop or enhance our products, expand capacity or otherwise respond to competitive pressures could be significantly limited, and our business, results of operations and financial condition could be materially and adversely affected.

Our auditors have expressed substantial doubt about our ability to continue as a going concern. Our auditors' report on our December 31, 2020 consolidated financial statements expresses an opinion that our capital resources as of the date of their audit report were not sufficient to sustain operations or complete our planned activities for the upcoming year unless we raised additional funds. Our current cash level raises substantial doubt about our ability to continue as a going concern past the third quarter of 2021. If we do not obtain additional capital by such time, we may no longer be able to continue as a going concern and may cease operation or seek bankruptcy protection.

Our products may never gain sufficient market acceptance, in which case we would be unable to sell our products or achieve profitability. Demand for our products may never develop sufficiently, and our products may never gain market acceptance, if we fail to produce products that compare favorably against competing products on the basis of cost, quality, weight, efficiency and performance. Demand for our products also will depend on our ability to develop and maintain successful relationships with key partners, including distributors, retailers, OEMs, system integrators and value-added resellers. If our products fail to gain market acceptance as quickly as we envision or at all, our business, results of operations and financial condition could be materially and adversely affected.

We are targeting emerging markets for a significant portion of our planned product sales. These markets are new and may not develop as rapidly as we expect or may not develop at all. Our target markets include portable power, defense, transportation, space and near space markets. Although certain areas of these markets have started to develop, some of them are in their infancy. We believe these markets have significant long-term potential; however, some or all of these markets may not develop and emerge as we expect. If the markets do develop as expected, there may be other products that could provide a superior product or a comparable product at lower prices than our products. If these markets do not develop as we expect, or if competitors are better able to capitalize on these markets our revenues and product margins may be negatively affected.

Failure to consummate strategic relationships with key partners in our various target market segments, such as defense and portable power, transportation, space and near space, and the respective implementations of the right strategic partnerships to enter these various specified markets, could adversely affect our projected sales, growth and revenues. We intend to sell thin-film PV modules for use in portable power systems, defense and portable power systems, transportation, space and near space solar panel applications. Our marketing and distribution strategy is to form strategic relationships with distributors, value added resellers and e-commerce to provide a foothold in these target markets. If we are unable to successfully establish working relationships with such market participants or if, due to cost, technical or other factors, our products prove unsuitable for use in such applications; our projected revenues and operating results could be adversely affected.

If sufficient demand for our products does not develop or takes longer to develop than we anticipate, we may be unable to grow our business, generate sufficient revenue to attain profitability or continue operations. The solar energy industry is at a relatively early stage of development, and the extent to which PV modules, including our own, will be widely adopted is uncertain. While pure PV solutions is not our short-term primary market, if PV technology proves unsuitable for widespread adoption or if demand for PV modules fails to develop sufficiently, long term we may be unable to grow our business, generate sufficient sales to attain profitability or continue operations. Many factors, of which several are outside of our control, may affect the viability of widespread adoption of PV technology and demand for PV modules.

We face intense competition from other manufacturers of thin-film PV modules and other companies in the solar energy industry. The solar energy and renewable energy industries are both highly competitive and continually evolving as participants strive to distinguish themselves within their markets and compete with the larger electric power industry. We believe our main sources of competition are other thin film PV manufacturers and companies developing other solar solutions, such as solar thermal and concentrated PV technologies.

Many of our existing and potential competitors have substantially greater financial, technical, manufacturing and other resources than we do. A competitor's greater size provides them with a competitive advantage because they often can realize economies of scale and purchase certain raw materials at lower prices. Many of our competitors also have greater brand name recognition, established distribution networks and large customer bases. In addition, many of our competitors have well-established relationships with our current and potential partners and distributors and have extensive knowledge of our target markets. As a result of their greater size, these competitors may be able to devote more resources to the research, development, promotion and sale of their products or respond more quickly to evolving industry standards and changes in market conditions than we can. Our failure to adapt to changing market conditions and to compete successfully with existing or future competitors could materially and adversely affect our business, results of operations and financial condition.

Problems with product quality or performance may cause us to incur warranty expenses, damage our market reputation and prevent us from maintaining or increasing our market share. If our products fail to perform as expected while under warranty, or if we are unable to support the warranties, sales of our products may be adversely affected or our costs may increase, and our business, results of operations and financial condition could be materially and adversely affected.

We may also be subject to warranty or product liability claims against us that are not covered by insurance or are in excess of our available insurance limits. In addition, quality issues can have various other ramifications, including delays in the recognition of revenue, loss of revenue, loss of future sales opportunities, increased costs associated with repairing or replacing products, and a negative impact on our goodwill and reputation. The possibility of future product failures could cause us to incur substantial expenses to repair or replace defective products. Furthermore, widespread product failures may damage our market reputation and reduce our market share causing sales to decline.

Currency translation risk may negatively affect our net sales, cost of equipment, cost of sales, gross margin or profitability and could result in exchange losses. Although our reporting currency is the U.S. dollar, we may conduct business and incur costs in the local currencies of other countries in which we operate, make sales or buy equipment or materials. As a result, we are subject to currency translation risk. Our future contracts and obligations may be exposed to fluctuations in currency exchange rates, and, as a result, our capital expenditures or other costs may exceed what we have budgeted. Further, changes in exchange rates between foreign currencies and the U.S. dollar could affect our net sales and cost of sales and could result in exchange losses. We cannot accurately predict future exchange rates or the overall impact of future exchange rate fluctuations on our business, results of operations and financial condition.

A significant increase in the price of our raw materials could lead to higher overall costs of production, which would negatively affect our planned product margins, or make our products uncompetitive in the PV market. Our raw materials include high temperature plastics and various metals. Significant increases in the costs of these raw materials may impact our ability to compete in our target markets at a price sufficient to produce a profit.

Our intellectual property rights or our means of enforcing those rights may be inadequate to protect our business, which may result in the unauthorized use of our products or reduced sales or otherwise reduce our ability to compete. Our business and competitive position depends upon our ability to protect our intellectual property rights and proprietary technology, including any PV modules that we develop. We attempt to protect our intellectual property rights, primarily in the United States, through a combination of patent, trade secret and other intellectual property laws, as well as licensing agreements

and third-party nondisclosure and assignment agreements. Because of the differences in foreign patent and other laws concerning intellectual property rights, our intellectual property rights may not receive the same degree of protection in foreign countries as they would in the United States. Our failure to obtain or maintain adequate protection of our intellectual property rights, for any reason, could have a materially adverse effect on our business, results of operations and financial condition. Further, any patents issued in connection with our efforts to develop new technology for PV modules may not be broad enough to protect all of the potential uses of our technology.

We also rely on unpatented proprietary technology. It is possible others will independently develop the same or similar technology or otherwise obtain access to our unpatented technology. To protect our trade secrets and other proprietary information, we require our employees, consultants and advisors to execute proprietary information and invention assignment agreements when they begin working for us. We cannot assure these agreements will provide meaningful protection of our trade secrets, unauthorized use, misappropriation or disclosure of trade secrets, know how or other proprietary information. Despite our efforts to protect this information, unauthorized parties may attempt to obtain and use information that we regard as proprietary. If we are unable to maintain the proprietary nature of our technologies, we could be materially adversely affected.

In addition, when others control the prosecution, maintenance and enforcement of certain important intellectual property, such as technology licensed to us, the protection and enforcement of the intellectual property rights may be outside of our control. If the entity that controls intellectual property rights that are licensed to us does not adequately protect those rights, our rights may be impaired, which may impact our ability to develop, market and commercialize our products. Further, if we breach the terms of any license agreement pursuant to which a third party licenses us intellectual property rights, our rights under that license may be affected and we may not be able to continue to use the licensed intellectual property rights, which could adversely affect our ability to develop, market and commercialize our products.

If third parties claim we are infringing or misappropriating their intellectual property rights, we could be prohibited from selling our PV products, be required to obtain licenses from third parties or be forced to develop non-infringing alternatives, and we could be subject to substantial monetary damages and injunctive relief. The PV industry is characterized by the existence of a large number of patents and frequent litigation based on allegations of patent infringement. We are aware of numerous issued patents and pending patent applications owned by third parties that may relate to current and future generations of solar energy. The owners of these patents may assert the manufacture, use or sale of any of our products infringes one or more claims of their patents. Moreover, because patent applications can take many years to issue, there may be currently pending applications, unknown to us, which may later result in issued patents that materially and adversely affect our business. Third parties could also assert claims against us that we have infringed or misappropriated their intellectual property rights. Whether or not such claims are valid, we cannot be certain we have not infringed the intellectual property rights of such third parties. Any infringement or misappropriation claim could result in significant costs or substantial damages to our business or an inability to manufacture, market or sell any of our PV modules found to infringe or misappropriate. Even if we were to prevail in any such action, the litigation could result in substantial cost and diversion of resources that could materially and adversely affect our business. The large number of patents, the rapid rate of new patent issuances, the complexities of the technology involved, and uncertainty of litigation increase the risk of business assets and management's attention being diverted to patent litigation. Even if obtaining a license were feasible, it could be costly and time consuming. We might be forced to obtain additional licenses from our existing licensors in the event the scope of the intellectual property we have licensed is too narrow to cover our activities, or in the event the licensor did not have sufficient rights to grant us the license(s) purportedly granted. Also, some of our licenses may restrict or limit our ability to grant sub-licenses and/or assign rights under the licenses to third parties, which may limit our ability to pursue business opportunities.

Our future success depends on retaining our Chief Executive Officer and existing management team and hiring and assimilating new key employees, and our inability to attract or retain key personnel that would materially harm our business and results of operations. Our success depends on the continuing efforts and abilities of our executive officers, including Mr. Victor Lee, our President and Chief Executive Officer, our other executive officers, and key technical personnel. Our future success also will depend on our ability to attract and retain highly skilled employees, including management, technical and sales personnel. The loss of any of our key personnel, the inability to attract, retain or assimilate key personnel in the future, or delays in hiring required personnel could materially harm our business, results of operations and financial condition.

Our PV modules contain limited amounts of cadmium sulfide and claims of human exposure or future regulations could have a material adverse effect on our business, results of operations and financial condition. Our PV modules contain limited amounts of cadmium sulfide, which is regulated as a hazardous material due to the adverse health effects that may arise from human exposure and is banned in certain countries. We cannot assure you that human or environmental exposure to cadmium sulfide used in our PV modules will not occur. Any such exposure could result in third party claims against us,

damage to our reputation and heightened regulatory scrutiny of our PV modules. Future regulation relating to the use of cadmium in various products could force us to seek regulatory exemptions or impact the manufacture and sale of our PV modules and could require us to incur unforeseen environmental related costs. The occurrence of future events such as these could limit our ability to sell and distribute our PV modules, and could have a material adverse effect on our business, results of operations and financial condition.

Environmental obligations and liabilities could have a substantial negative impact on our financial condition, cash flows and profitability. We are subject to a variety of federal, state, local and foreign laws and regulations relating to the protection of the environment, including those governing the use, handling, generation, processing, storage, transportation and disposal of, or human exposure to, hazardous and toxic materials (such as the cadmium used in our products), the discharge of pollutants into the air and water, and occupational health and safety. We are also subject to environmental laws which allow regulatory authorities to compel, or seek reimbursement for, cleanup of environmental contamination at sites now or formerly owned or operated by us and at facilities where our waste is or has been disposed. We may incur significant costs and capital expenditures in complying with these laws and regulations. In addition, violations of, or liabilities under, environmental laws or permits may result in restrictions being imposed on our operating activities or in our being subjected to substantial fines, penalties, criminal proceedings, third party property damage or personal injury claims, cleanup costs or other costs. Also, future developments such as more aggressive enforcement policies, the implementation of new, more stringent laws and regulations, or the discovery of presently unknown environmental conditions or noncompliance may require expenditures that could have a material adverse effect on our business, results of operations and financial condition. Further, greenhouse gas emissions have increasingly become the subject of international, national, state and local attention. Although future regulations could potentially lead to an increased use of alternative energy, there can be no guarantee that such future regulations will encourage solar technology. Given our limited history of operations, it is difficult to predict future environmental expenses.

We currently anticipate having substantial international operations that will subject us to a number of risks, including potential unfavorable political, regulatory, labor and tax conditions in foreign countries. We expect to expand our operations abroad in the future and, as a result, we may be subject to the legal, political, social and regulatory requirements and economic conditions of foreign jurisdictions. Risks inherent to international operations, include, but are not limited to, the following:

- Difficulty in procuring supplies and supply contracts abroad;
- Difficulty in enforcing agreements in foreign legal systems;
- Foreign countries imposing additional withholding taxes or otherwise taxing our foreign income, imposing tariffs or adopting other restrictions on foreign trade and investment, including currency exchange controls;
- Inability to obtain, maintain or enforce intellectual property rights;
- Risk of nationalization;
- Changes in general economic and political conditions in the countries in which we may operate, including changes in the government incentives we might rely on;
- Unexpected adverse changes in foreign laws or regulatory requirements, including those with respect to environmental protection, export duties and quotas;
- Difficulty with staffing and managing widespread operations;
- Trade barriers such as export requirements, tariffs, taxes and other restrictions and expenses, which could increase the prices of our products and make us less competitive in some countries; and
- Difficulty of, and costs relating to, compliance with the different commercial and legal requirements of the international markets in which we plan to offer and sell our PV products.

Our business in foreign markets will require us to respond to rapid changes in market conditions in these countries. Our overall success as an international business depends, in part, on our ability to succeed in differing legal, regulatory, economic, social and political conditions. If we are not able to develop and implement policies and strategies that are effective in each location where we will do business, then our business, results of operations and financial condition could be materially and adversely affected.

Existing regulations and policies and changes to these regulations and policies may present technical, regulatory and economic barriers to the purchase and use of PV products, which may significantly reduce demand for our PV products. The market for electricity generation products is heavily influenced by foreign, U.S., state and local government regulations and policies concerning the electric utility industry, as well as policies promulgated by electric utilities. These regulations and policies often relate to electricity pricing and technical interconnection of customer owned electricity generation. In the United States and in a number of other countries, these regulations and policies have been modified in the past and may be modified again in the future. These regulations and policies could deter end user purchases of PV products and investment in the research and development of PV technology. For example, without a mandated regulatory exception for PV systems, utility customers are often charged interconnection or standby fees for putting distributed power generation on the electric utility grid. These fees could increase the cost to our end users of using PV systems and make them less desirable, thereby harming our business, prospects, results of operations and financial condition. In addition, electricity generated by PV systems mostly competes with expensive peak hour electricity, rather than the less expensive average price of electricity. Modifications to the peak hour pricing policies of utilities, such as to a flat rate, would require PV systems to achieve lower prices in order to compete with the price of electricity from other sources.

We anticipate that our PV modules and their use in installations will be subject to oversight and regulation in accordance with national and local ordinances relating to building codes, safety, environmental protection, utility interconnection and metering and related matters. It is difficult to track the requirements of individual states and design equipment to comply with the varying standards. Any new government regulations or utility policies pertaining to PV modules may result in significant additional expenses to us, our business partners and their customers and, as a result, could cause a significant reduction in demand for our PV modules.

We may be subject to risks related to our information technology systems, including the risk that we may be the subject of a cyber-attack and the risk that we may be in non-compliance with applicable privacy laws. Our operations depend, in part, on how well we and our vendors protect networks, equipment, information technology (IT) systems, and software against damage from a number of threats, including, but not limited to, cable cuts, damage to physical plants, natural disasters, intentional damage and destruction, fire, power loss, hacking, computer viruses, vandalism, theft, malware, ransomware and phishing attacks. Any of these and other events could result in IT system failures, delays, or increases in capital expenses. Our operations also depend on the timely maintenance, upgrade, and replacement of networks, equipment, and IT systems and software, as well as preemptive expenses to mitigate the risks of failures. The failure of IT systems or a component of IT systems could, depending on the nature of any such failure, adversely impact our reputation and results of operations.

We have identified material weaknesses in our internal control over financial reporting. If our remedial measures are insufficient to address the material weaknesses, or if additional material weaknesses or significant deficiencies in our internal control over financial reporting are discovered or occur in the future, our consolidated financial statements may contain material misstatements, which could adversely affect our stock price and could negatively impact our results of operations. At December 31, 2020, we concluded that there were material weaknesses in our internal control over financial reporting. A material weakness is a deficiency, or combination of deficiencies, in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of our annual or interim financial statements will not be prevented or detected on a timely basis. See Item 9A in Part II of this Annual Report on Form 10-K for details.

We have begun evaluating and implementing additional procedures to improve our internal controls; however, because of our limited resources, we cannot assure that these or other measures will fully remediate the deficiencies or material weakness described above in a timely manner. We intend to address the weaknesses identified above by increasing the oversight and review procedures of the board of directors with regard to financial reporting, financial processes and procedures, and internal control procedures and, if and when funding is available, hiring additional finance and accounting personnel.

Nevertheless, there can be no assurances that we will be able to remedy our current material weaknesses and significant deficiencies. If we are unable to remediate the material weakness, or otherwise maintain effective internal control over financial reporting, we may not be able to report our financial results accurately, prevent fraud, or file our periodic reports in a timely manner. We cannot assure you that we have identified all of our existing significant deficiencies and material weaknesses, or that we will not in the future have additional significant deficiencies or material weaknesses.

As long as our significant stockholders Crowdex and TubeSolar maintain their current holdings, the ability of our other stockholders to influence matters requiring stockholder approval will be limited. As of May 13, 2021 Crowdex owned 12 billion shares of our common stock and 1,300 shares of our outstanding Series 1A preferred stock. As of May 13, 2021 TubeSolar owned 2,500 shares of our outstanding Series 1A preferred stock. Bernd Förtsch controls Crowdex and TubeSolar.

Pursuant to the conversion and voting terms of the Series 1A preferred stock, (i) Crowdex would be entitled to cast an additional 13 billion votes and (ii) TubeSolar would be entitled to cast an additional 25 billion votes, on any matter to be considered by stock holders for approval at any meeting of stockholders of the Company (or by written consent of stockholders in lieu of meeting). At any such meeting of stockholders of the Company (or written consent of stockholders in lieu of meeting), the Series 1A preferred stock will generally vote together with the holders of common stock as a single class and on an as-converted to common stock basis. The Company currently has approximately 18.3 billion shares of common stock currently outstanding.

Accordingly, Crowdex and TubeSolar together would be able to cast approximately 89% of the votes entitled to vote at any meeting of stockholders of the Company (or written consent of stockholders in lieu of meeting). Crowdex and TubeSolar, therefore, will, for the foreseeable future, have significant influence over our management and affairs, and will be able to control virtually all matters requiring stockholder approval, including the election of directors and significant corporate transactions such as mergers or sales of our company or assets.

The interests of our three largest stockholders may conflict with our interests or your interests now or in the future. As further described in Part III, Item 12. “Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters” below, as of May 13, 2021, two of our stockholders (Crowdex and TubeSolar) collectively beneficially own approximately 32% of our Company’s common stock (on a fully diluted, as converted to common stock, basis) based on their holdings of (i) outstanding shares of our common stock, (ii) outstanding shares of our Series 1A convertible preferred stock, and (iii) our outstanding convertible notes. A third stockholder (BD 1) beneficially owns approximately 64% of our common stock (on a fully diluted, as converted to common stock, basis) based on its holdings of our outstanding convertible notes.

Crowdex is an investment holding company 100% indirectly beneficially owned by Bernd Förtsch. One of our directors, David Peterson, is the manager of Crowdex.

TubeSolar is a developer of photovoltaic thin-film tubes to enable additional application opportunities in solar power generation compared to conventional solar modules. TubeSolar is a public company headquartered in Augsburg, Germany, whose shares are listed on XETRA (primary market Dusseldorf, Germany). Bernd Förtsch indirectly owns a controlling interest in TubeSolar.

BD 1 is an investment holding company. Johannes Kuhn is the indirect beneficial owner of BD 1.

Various conflicts of interest between us and our controlling stockholders could arise. The ownership interest and voting power of our controlling stockholders could create or appear to create potential conflicts of interest when such controlling stockholders are faced with decisions relating to us. We may not be able to resolve any potential conflicts, and even if we do, the resolution may be less favorable to us than if we were dealing with an unaffiliated third party.

So long as Crowdex, TubeSolar and BD 1 continue to beneficially own a significant amount of our outstanding equity securities, those stockholders may be able to strongly influence or effectively control our decisions.

Risks Relating to our Securities and an Investment in our Common Stock

As a public company we are subject to complex legal and accounting requirements that require us to incur substantial expenses, and our financial controls and procedures may not be sufficient to ensure timely and reliable reporting of financial information, which, as a public company, could materially harm our stock price and listing on the OTC. As a public company, we are subject to numerous legal and accounting requirements that do not apply to private companies. The cost of compliance with many of these requirements is substantial, not only in absolute terms but, more importantly, in relation to the overall scope of the operations of a small company. Failure to comply with these requirements can have numerous adverse consequences including, but not limited to, our inability to file required periodic reports on a timely basis, loss of market confidence, delisting of our securities and/or governmental or private actions against us. We cannot assure you we will be able to comply with all of these requirements or the cost of such compliance will not prove to be a substantial competitive disadvantage vis-à-vis our privately held and larger public competitors.

The Sarbanes-Oxley Act of 2002 (“Sarbanes-Oxley”) requires, among other things, that we maintain effective internal control over financial reporting and disclosure controls and procedures. In particular, we must perform system and process evaluation and testing of our internal control over financial reporting to allow management to report on the effectiveness of our internal control over financial reporting, as required by Section 404 of Sarbanes-Oxley. Our compliance with Section 404 of

Sarbanes-Oxley will require we incur substantial accounting expense and expend significant management efforts. The effectiveness of our controls and procedures may, in the future, be limited by a variety of factors, including:

- Faulty human judgment and simple errors, omissions or mistakes;
- Fraudulent action of an individual or collusion of two or more people;
- Inappropriate management override of procedures; and
- The possibility that any enhancements to controls and procedures may still not be adequate to assure timely and accurate financial information.

If we are not able to comply with the requirements of Section 404 in a timely manner, or if we or our independent registered public accounting firm, identifies deficiencies in our internal control over financial reporting that are deemed to be material weaknesses, we may be subject to OTC delisting, investigations by the SEC and civil or criminal sanctions.

Our ability to successfully implement our business plan and comply with Section 404 requires us to be able to prepare timely and accurate financial statements. We expect we will need to continue to improve existing, and implement new operational, financial and accounting systems, procedures and controls to manage our business effectively.

Any delay in the implementation of, or disruption in the transition to, new or enhanced systems, procedures or controls may cause our operations to suffer, and we may be unable to conclude that our internal control over financial reporting is effective as required under Section 404 of Sarbanes-Oxley. If we are unable to complete the required Section 404 assessment as to the adequacy of our internal control over financial reporting, if we fail to maintain or implement adequate controls, our ability to obtain additional financing could be impaired. In addition, investors could lose confidence in the reliability of our internal control over financial reporting and in the accuracy of our periodic reports filed under the Exchange Act. A lack of investor confidence in the reliability and accuracy of our public reporting could cause our stock price to decline.

The price of our common stock may continue to be volatile. Our common stock is currently traded on the OTC Market. The trading price of our common stock from time to time has fluctuated widely and may be subject to similar volatility in the future. For example, during most of the calendar year ended December 31, 2020, our common stock traded below $0.01. The trading price of our common stock in the future may be affected by a number of factors, including events described in these “Risk Factors.” In recent years, broad stock market indices, in general, and smaller capitalization and PV companies, in particular, have experienced substantial price fluctuations. In a volatile market, we may experience wide fluctuations in the market price of our common stock. These fluctuations may have a negative effect on the market price of our common stock regardless of our operating performance. In the past, following periods of volatility in the market price of a company’s securities, securities class action litigation has often been instituted. A securities class action suit against us could result in substantial costs, potential liabilities and the diversion of management’s attention and resources and could have a material adverse effect on our financial condition.

There is no assurance that we will have enough authorized shares of common stock to honor the conversion or exercise of our convertible notes, convertible preferred stock and other derivative securities. Our Certificate of Incorporation currently authorizes 20 billion shares of common stock. As of May 13, 2021 we had approximately 18.3 billion common shares outstanding. We are currently obligated to issue approximately 145.5 billion additional shares of common stock to our controlling stockholders (Crowdex, TubeSolar, and BD 1) upon conversion of (i) outstanding convertible notes and (ii) outstanding shares of our Series 1A preferred stock. See Part III, Item 12. “Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters” below.

In order to honor future potential conversion requests relating to these convertible securities, we would have to amend our charter to (i) significantly increase our authorized common shares and/or (ii) implement a reverse stock split (without making a corresponding reduction to our authorized common shares). There is no assurance that we will have enough authorized shares of common stock to honor the conversion of these convertible securities held by our controlling stockholders. In addition, if the Company does not have sufficient shares of authorized and unissued common stock, the Company may be limited in its ability to raise additional capital through the issuance of (i) newly issued common shares or (ii) newly issued preferred stock or debt securities convertible into shares of common stock.

Our stockholders may experience significant dilution as a result of shares of our common stock issued pursuant to our currently outstanding securities and existing agreements, and pursuant to new securities that we may issue in the

future. We are likely to issue substantial amounts of additional common stock in connection with most of our outstanding convertible preferred stock and convertible notes. In particular, we are currently obligated to issue approximately 145.5 billion additional shares of common stock to our controlling stockholders (Crowdex, TubeSolar, and BD 1) upon conversion of (i) outstanding convertible notes and (ii) outstanding shares of our Series 1A preferred stock. See Part III, Item 12. "Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters" below. We may also issue additional common stock or securities convertible into or exchangeable or exercisable for common stock, in connection with future capital raising transactions.

The issuance of material amounts of common stock by us would cause our existing stockholders to experience significant dilution in their investment in our Company. Also, if we obtain additional financing involving the issuance of equity securities or securities convertible into equity securities, our existing stockholders' investment would be further diluted. Such dilution could cause the market price of our common stock to decline, which could impair our ability to raise additional financing.

Sales of a significant number of shares of our common stock in the public markets or significant short sales of our stock, or the perception that such sales could occur, could depress the market price of our common stock and impair our ability to raise capital. Sales of a substantial number of shares of our common stock or other equity-related securities in the public markets could depress the market price of our common stock. If there are significant short sales of our stock, the price decline that could result from this activity may cause the share price to decline more so, which, in turn, may cause long holders of the stock to sell their shares, thereby contributing to sales of stock in the market. Such sales also may impair our ability to raise capital through the sale of additional equity securities in the future at a time and price that our management deems acceptable, if at all. In addition, a large number of our outstanding shares are not registered under the Securities Act. If and when these shares are registered or become eligible for sale to the public market, the market price of our common stock could also decline.

Our common stock has been delisted from the NASDAQ Capital Market and the OTCQB Venture Market. Our inability to maintain our prior listings on NASDAQ and OTCQB may limit the liquidity of our stock, increase its volatility and hinder our ability to raise capital. On February 25, 2016, our common stock was delisted from the NASDAQ Capital Market and began trading on the OTCQB Venture Market. On May 20, 2017 our common stock was delisted from the OTCQB Venture Market and began trading on the OTC.

Upon such delisting from NASDAQ, our common stock became subject to the regulations of the SEC relating to the market for penny stocks. A penny stock is any equity security not traded on a national securities exchange that has a market price of less than $5.00 per share. The regulations applicable to penny stocks may severely affect the market liquidity for our common stock and could limit the ability of shareholders to sell securities in the secondary market. Accordingly, investors in our common stock may find it more difficult to dispose of or obtain accurate quotations as to the market value of our common stock, and there can be no assurance that our common stock will be continue to be eligible for trading or quotation on the OTC or any other alternative exchanges or markets.

The delisting of our common stock from the NASDAQ Capital Market and the OTCQB Venture Market may adversely affect our ability to raise additional financing through public or private sales of equity securities, may significantly affect the ability of investors to trade our securities, and may negatively affect the value and liquidity of our common stock. Such delisting from the NASDAQ Capital Market and the OTCQB Venture Market may also have other negative results, including the potential loss of confidence by employees, the loss of institutional investor interest and fewer business development opportunities.

Some provisions of our charter documents and Delaware law may have anti-takeover effects that could discourage an acquisition of us by others, even if an acquisition would be beneficial to our stockholders, and may prevent attempts by our stockholders to replace or remove our current management. Provisions in our Amended and Restated Certificate of Incorporation and Second Amended and Restated Bylaws, each as amended, as well as provisions of Delaware law, could make it more difficult for a third party to acquire us, or for a change in the composition of our Board of Directors (our "Board") or management to occur, even if doing so would benefit our stockholders. These provisions include:

- Authorizing the issuance of "blank check" preferred stock, the terms of which may be established and shares of which may be issued without stockholder approval;
- Dividing our Board into three classes;
- Limiting the removal of directors by the stockholders; and
- Limiting the ability of stockholders to call a special meeting of stockholders.

In addition, we are subject to Section 203 of the Delaware General Corporation Law, which generally prohibits a Delaware corporation from engaging in any of a broad range of business combinations with an interested stockholder for a period of three years following the date on which the stockholder became an interested stockholder, unless such transactions are approved by our Board. This provision could have the effect of delaying or preventing a change of control, whether or not it is desired by, or beneficial to, our stockholders.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

We currently lease an approximately 100,000 square foot manufacturing and office facility in Thornton, Colorado.

Item 3. Legal Proceedings

In May 2019, the Company's former law firm filed suit against the Company in District Court in Adams County Colorado in an effort to collect approximately $1.2 million of unpaid fees (and related interest charges). On September 11, 2020, the Company entered into a settlement agreement (the "Settlement Agreement") with its former law firm. Pursuant to the Settlement Agreement, the Company paid $120,000 on September 23, 2020 as the full and final settlement of all amounts owed between the parties. Following such payment, a satisfaction of an existing judgment in favor of such law firm was filed in Adams County, Colorado.

On July 29, 2020, the Company's owned facility at 12300 Grant Street, Thornton, CO 80241 (the "Building") was foreclosed by the Building's first lien holder ("Mortgage Holder") and sold at public auction. The successful bidder for the Building was the Mortgage Holder, at the price of $7.193 million. As a result, the Company's obligations to Mortgage Holder and all of the Company's outstanding real property taxes on the Building were considered fully repaid.

Item 4. Mine Safety Disclosures

Not applicable.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Market Information

Our stock previously traded on the NASDAQ Capital Market. On February 23, 2016 the Company received notice from NASDAQ stating that NASDAQ had determined to delist the Company's common stock. On May 20, 2017 our common stock was delisted from the OTCQB Venture Market and began trading on the OTC. Our trading symbol is "ASTI." The following table sets forth the high and low-sales price information per share for our common stock for the last two completed fiscal years, as adjusted for reverse stock splits.

Price Range of Common Stock

	High	Low
Fiscal 2019		
First Quarter	$ 0.0170	$ 0.0013
Second Quarter	0.0021	0.0010
Third Quarter	0.0010	0.0001
Fourth Quarter	0.0002	0.0001
Fiscal 2020		
First Quarter	0.0002	0.0001
Second Quarter	0.0002	0.0001
Third Quarter	0.0002	0.0001
Fourth Quarter	0.0085	0.0002

Holders

As of December 31, 2020, the number of record holders of our common stock was 32. Because many of our shares of common stock are held by brokers and other institutions on behalf of stockholders, we are unable to estimate the total number of stockholders represented by these record holders.

Dividends

The holders of common stock are entitled to receive such dividends as may be declared by our Board of Directors. During the years ended December 31, 2020 and 2019, we did not pay any common stock dividends, and we do not expect to declare or pay any dividends in the foreseeable future. Payment of future dividends will be within the discretion of our Board of Directors and will depend on, among other factors, our retained earnings, capital requirements, and operating and financial condition.

Item 6. Selected Financial Data

Smaller reporting companies are not required to provide the information required by this Item.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

The following discussion of our financial condition and results of operations should be read in conjunction with our audited financial statements and the notes to those financial statements appearing elsewhere in this Form 10-K. This discussion and analysis contain statements of a forward-looking nature relating to future events or our future financial performance. As a result of many factors, our actual results may differ materially from those anticipated in these forward-looking statements. These statements involve known and unknown risks, uncertainties and other factors that may cause our actual results, levels of activity, performance or achievements to be materially different from any future results, levels of activity, performance or achievements expressed or implied by these forward-looking statements.

Overview

We are a company formed to commercialize flexible PV modules using our proprietary technology. For the year ended December 31, 2020, we generated $66,613 of revenue. Product sales accounted for 100% of total revenue. As of December 31, 2020, we had an accumulated deficit of approximately $421,782,785.

In January 2017, Ascent was awarded a contract to supply high-voltage SuperLight thin-film CIGS PV blankets. These 50W, fully laminated, flexible blankets were manufactured using a new process that was optimized for high performance in near-space conditions at elevated temperatures, and are custom designed for easy modular integration into series and parallel configurations to achieve the desired voltage and current required for such application.

In February 2017 Ascent announced the discontinuation of our EnerPlex consumer business by disposing of the EnerPlex brand, and related intellectual properties and trademarks, to our battery product supplier, Sun Pleasure Co. Limited ("SPCL"). This transaction was completed in an effort to better allocate our resources and to continue to focus on our core strength in the high-value specialty PV market. Following the transfer, Ascent no longer produces or sells Enerplex-branded consumer products. In November 2017, Ascent introduced the next generation of our USB-based portable power systems with the XD™ series. The first product introduced was the XD-12 which, like previous products, is a folding, lightweight, easily stowable, PV system with USB power regulation. Unique to this generation of PV portable power is more PV power (12 Watts) and a 2.0 Amp smart USB output to enable the XD-12 to charge most smartphones, tablets, and USB-enabled devices as fast as a wall outlet. The enhanced smart USB circuit works with the device to be charged so that the device can determine the maximum power it is able to receive from the XD-12 and ensures the best possible charging performance directly from the sun.

Also, in 2017, for a space customer, Ascent manufactured a new micro-module, approximately 12.8mm x 50mm (0.5in x 2.0in) in size that is ideal for both laboratory-scale environmental testing, and for subsequent integration into flight experiments.

In February 2018, the Company introduced the second product in our XD series. Delivering up to 48 Watts of solar power, the durable and compact Ascent XD-48 Solar Charger is the ideal solution for charging many portable electronics and off-grid power systems. The XD-48's versatility allows it to charge both military and consumer electronics directly from the sun wherever needed. Like the XD-12, the XD-48 has a compact and portable design, and its rugged, weather-resistant construction withstands shocks, drops, damage and even minor punctures to power through the harshest conditions.

In March 2018, Ascent successfully shipped to a European based customer for a lighter-than-air, helium-filled airship project based on our newly developed ultra-light modules with substrate material than half of the thickness of our standard modules. In 2019, Ascent completed a repeat order from the same customer who had since established its airship development operation in the US. In 2020, Ascent received a third and enlarged order from the same customer and is scheduled to complete the order in Q2 2021.

We continue to design and manufacture PV integrated portable power applications for commercial and military users. Due to the high durability enabled by the monolithic integration employed by our technology, the capability to customize modules into different form factors and the industry leading light weight and flexibility provided by our modules, we believe that the potential applications for our products are extensive.

Commercialization and Manufacturing Strategy

We manufacture our products by affixing a thin CIGS layer to a flexible, plastic substrate using a large format, roll-to-roll process that permits us to fabricate our flexible PV modules in an integrated sequential operation. We use proprietary monolithic integration techniques which enable us to form complete PV modules with little to no costly back end assembly of inter cell connections. Traditional PV manufacturers assemble PV modules by bonding or soldering discrete PV cells together. This manufacturing step typically increases manufacturing costs and at times proves detrimental to the overall yield and reliability of the finished product. By reducing or eliminating this added step using our proprietary monolithic integration techniques, we believe we can achieve cost savings in, and increase the reliability of, our PV modules. All tooling necessary for us to meet our near-term production requirements is installed in our Thornton, Colorado plant. In 2012, we further revised our strategy to focus on applications for emerging and high-value specialty PV markets, including off grid, aerospace, military and defense and consumer-oriented products.

We plan to continue the development of our current PV technology to increase module efficiency, improve our manufacturing tooling and process capabilities and reduce manufacturing costs. We also plan to continue to take advantage of research and development contracts to fund a portion of this development.

Significant Trends, Uncertainties and Challenges

We believe the significant trends, uncertainties and challenges that directly or indirectly affect our financial performance and results of operations include:

- Our ability to generate customer acceptance of and demand for our products;
- Successful ramping up of commercial production on the equipment installed;
- Our products are successfully and timely certified for use in our target markets;
- Successful operating of production tools to achieve the efficiencies, throughput and yield necessary to reach our cost targets;
- The products we design are saleable at a price sufficient to generate profits;
- Our ability to raise sufficient capital to enable us to reach a level of sales sufficient to achieve profitability on terms favorable to us;
- Effective management of the planned ramp up of our domestic and international operations;
- Our ability to successfully develop and maintain strategic relationships with key partners, including OEMs, system integrators, distributors, retailers and e-commerce companies, who deal directly with end users in our target markets;
- Our ability to maintain the listing of our common stock on the OTC Market;
- Our ability to implement remediation measures to address material weaknesses in internal control;
- Our ability to achieve projected operational performance and cost metrics;
- Our ability to enter into commercially viable licensing, joint venture, or other commercial arrangements;
- The extent to which our interests align with or deviate from our controlling stockholders;
- Availability of raw materials; and
- COVID-19 and the uncertainty around the continued duration and effect of the worldwide pandemic.

Basis of Presentation: The discussion and analysis of our financial condition and results of operations are based on our consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States ("US GAAP"). The preparation of these consolidated financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses, and related disclosure of contingent assets and liabilities. On an ongoing basis, we evaluate our estimates based on historical experience and on various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions. We have identified the policies below as critical to our business operations and to the understanding of our financial results:

Significant Accounting Policies

Inventories: All inventories are stated at the lower of cost or net realizable value, with cost determined using the weighted average method. Inventory balances are frequently evaluated to ensure they do not exceed net realizable value. The computation for net realizable value takes into account many factors, including expected demand, product life cycle and development plans, module efficiency, quality issues, obsolescence and others. Management's judgment is required to determine reserves for obsolete or excess inventory. As of December 31, 2020 and 2019, the Company had inventory reserve balances of $598,392 and $584,269, respectively. If actual demand and market conditions are less favorable than those estimated by management, additional inventory write downs may be required.

Impairment of Long-lived assets: We analyze our long-lived assets (property, plant and equipment) and definitive-lived intangible assets (patents) for impairment, both individually and as a group, whenever events or changes in circumstances indicate the carrying amount of the assets may not be recoverable. Events that might cause impairment would include significant current period operating or cash flow losses associated with the use of a long-lived asset or group of assets combined with a history of such losses, significant changes in the manner of use of assets and significant negative industry or economic trends. An undiscounted cash flow analysis is calculated to determine if an impairment exists. If an impairment is determined to exist, any related loss is calculated using the difference between the fair value and the carrying value of the assets. During the years ended December 31, 2020 and 2019, we did not incur impairments of our manufacturing facilities and equipment.

Convertible Preferred Stock: The Company evaluates its preferred stock instruments under FASB ASC 480, *"Distinguishing Liabilities from Equity"* to determine the classification, and thereby the accounting treatment, of the instruments. Please refer to Note 14 for further discussion on the classification of each instrument.

Derivatives: The Company evaluates its financial instruments under FASB ASC 815, *"Derivatives and Hedging"* to determine whether the instruments contain an embedded derivative. When an embedded derivative is present, the instrument is evaluated for a fair value adjustment upon issuance and at the end of every period. Any adjustments to fair value are treated as gains and losses in fair values of derivatives and are recorded on the Statement of Operations. Please refer to Notes 10 and 12 for further discussion on the embedded derivatives of each instrument.

Paycheck Protection Program Loan: The Company has elected to account for the forgivable loan received under the Paycheck Protection Program (“PPP”) provisions of the Coronavirus Aid, Relief, and Economic Security (“CARES”) Act as a debt instrument and to accrue interest on the outstanding loan balance. Additional interest at a market rate (due to the stated interest rate of the PPP loan being below market) is not imputed, as the transactions where interest rates prescribed by governmental agencies are excluded from the scope of accounting guidance on imputing interest. The proceeds from the loan will remain recorded as a liability until either (1) the loan is, in part of wholly, forgiven and the Company has been legally released or (2) the Company repays the loan to the lender.

Revenue Recognition:

Product revenue. We recognize revenue for module and other equipment sales at a point in time following the transfer of control of such products to the customer, which typically occurs upon shipment or delivery depending on the terms of the underlying contracts. For module and other equipment sales contracts that contain multiple performance obligations, we allocate the transaction price to each performance obligation identified in the contract based on relative standalone selling prices, or estimates of such prices, and recognize the related revenue as control of each individual product is transferred to the customer, in satisfaction of the corresponding performance obligations.

During the years ended December 31, 2020 and 2019, the Company recognized product revenue of $66,613 and $638,380, respectively.

Government contract revenue. Revenue from government research and development contracts is generated under terms that are cost plus fee or firm fixed price. We generally recognize this revenue over time using cost-based input methods, which recognize revenue and gross profit as work is performed based on the relationship between actual costs incurred compared to the total estimated costs of the contract. In applying cost-based input methods of revenue recognition, we use the actual costs incurred relative to the total estimated costs to determine our progress towards contract completion and to calculate the corresponding amount of revenue to recognize.

Cost based input methods of revenue recognition are considered a faithful depiction of our efforts to satisfy long-term government research and development contracts and therefore reflect the performance obligations under such contracts. Costs incurred that do not contribute to satisfying our performance obligations are excluded from our input methods of revenue recognition as the amounts are not reflective of our transferring control under the contract. Costs incurred towards contract completion may include direct costs plus allowable indirect costs and an allocable portion of the fixed fee. If actual and estimated costs to complete a contract indicate a loss, provision is made currently for the loss anticipated on the contract.

Research, Development and Manufacturing Operations Costs: Research, development and manufacturing operations expenses were approximately $1,165,193 and $1,310,948 for the years ended December 31, 2020 and 2019, respectively. Research, development and manufacturing operations expenses include: 1) technology development costs, which include expenses incurred in researching new technology, improving existing technology and performing federal government research and development contracts, 2) product development costs, which include expenses incurred in developing new products and lowering product design costs, and 3) pre-production and production costs, which include engineering efforts to improve production processes, material yields and equipment utilization, and manufacturing efforts to produce saleable product. Research, development and manufacturing operations costs are expensed as incurred, with the exception of costs related to inventoried raw materials, work-in-process and finished goods, which are expensed as Cost of revenue as products are sold.

Share-Based Compensation: We measure and recognize compensation expense for all share-based payment awards made to employees, officers, directors, and consultants based on estimated fair values. The value of the portion of the award that is ultimately expected to vest is recognized as expense over the requisite service period in our statements of operations included herein. Share-based compensation is based on awards ultimately expected to vest, reduced by estimated forfeitures. Forfeitures are estimated at the time of grant and revised, as necessary, in subsequent periods if actual forfeitures differ from those estimates. For purposes of determining estimated fair value of share-based payment awards on the date of grant, we use the Black-Scholes option-pricing model ("Black-Scholes Model") for option awards. The Black-Scholes Model requires the input of highly subjective assumptions. Because our employee stock options may have characteristics significantly different from those of traded options, and because changes in the subjective input assumptions can materially affect the fair value estimate, in management's opinion, the existing models may not provide a reliable single measure of the fair value of our employee stock options. Management will continue to assess the assumptions and methodologies used to calculate estimated fair value of share-based compensation. Circumstances may change and additional data may become available over time, which result in changes to these assumptions and methodologies, which could materially impact our fair value determination. We estimate the fair value of our restricted stock awards at our stock price on the grant date.

The accounting guidance for share-based compensation may be subject to further interpretation and refinement over time. There are significant differences among option valuation models, and this may result in a lack of comparability with other companies that use different models, methods and assumptions. If factors change and we employ different assumptions in the accounting for share-based compensation in future periods, or if we decide to use a different valuation model, the compensation expense we record in the future may differ significantly from what we have recorded in the current period and could materially affect our loss from operations, net loss and net loss per share.

Use of Estimates: The preparation of financial statements in conformity with U.S. generally accepted accounting principles ("GAAP") requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Recently Issued Accounting Standards

In August 2020, the FASB issued ASU No. 2020-06, *Debt - Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging Contracts in Entity s Own Equity (Subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity s Own Equity*. ASU 2020-06 will simplify the accounting for convertible instruments by reducing the number of accounting models for convertible debt instruments and convertible preferred stock. Limiting the accounting models results in fewer embedded conversion features being separately recognized from the host contract as compared with current GAAP. Convertible instruments that continue to be subject to separation models are (1) those with embedded conversion features that are not clearly and closely related to the host contract, that meet the definition of a derivative, and that do not qualify for a scope exception from derivative accounting and (2) convertible debt instruments issued with substantial premiums for which the premiums are recorded as paid-in capital. ASU 2020-06 also amends the guidance for the derivatives scope exception for contracts in an entity's own equity to reduce form-over-substance-based accounting conclusions. ASU 2020-06 will be effective for public companies for fiscal years beginning after December 15, 2023, including interim

periods within those fiscal years. Early adoption is permitted, but no earlier than fiscal years beginning after December 15, 2020, including interim periods within those fiscal years. Management has not yet evaluated the impact that the adoption of ASU 2020-06 will have on the Company's consolidated financial statement presentation or disclosures.

Other new pronouncements issued but not effective as of December 31, 2020 are not expected to have a material impact on the Company's consolidated financial statements.

Results of Operations

Comparison of the Years Ended December 31, 2020 and 2019

Revenues. Our revenues were $66,613 for the year ended December 31, 2020 compared to $638,380 for the year ended December 31, 2019, a decrease of $571,767. The decrease in sales is due primarily to significantly reduced operations during the year ended December 31, 2020. The Company was in a dormant status for the most part of the year as the focus in 2020 was to recapitalize and restructure the Company's balance sheet. The intensification of the COVID-19 pandemic since March 2020 also significantly impacted our restructuring effort, thereby delaying our ability to restart our operations in a timely manner.

Cost of revenues. Our cost of revenues for the year ended December 31, 2020 was $174,588 compared to $490,755 for the year ended December 31, 2019, a decrease of 64%. The decrease in cost of revenues is mainly due to the decrease in materials and labor costs as a result of a decrease in production for the year ended December 31, 2020 compared to 2019. Cost of revenues for the year ended December 31, 2020 is comprised primarily of direct labor and overhead. Management believes our factory is currently significantly under-utilized, and a substantial increase in revenue would result in marginal increases to direct labor and overhead included in the cost of revenues. As such, management's focus going forward is to improve gross margin through increased sales and improved utilization of our factory. We are currently pursuing high-value PV markets.

Research, development and manufacturing operations. Research, development and manufacturing operations costs were $1,165,193 for the year ended December 31, 2020, compared to $1,310,948 for the year ended December 31, 2019, a decrease of 11%. The decrease in cost is due primarily to reduced operations during the year ended December 31, 2020. Research, development and manufacturing operations costs include costs incurred for product development, pre-production and production activities in our manufacturing facility. Research, development and manufacturing operations costs also include costs related to technology development and governmental contracts.

Selling, general and administrative. Selling, general and administrative expenses were $1,029,720 for the year ended December 31, 2020, compared to $1,846,944 for the year ended December 31, 2019, a decrease of 44%. The decrease in costs is due primarily to reduced operations in the current period.

Other Income/Expense, net. Other income was $4,071,990 for the year ended December 31, 2020, compared to other expense $1,615,213 for the year ended December 31, 2019, an improvement of $5,687,203. The improvement is due primarily to the gain on sale of our facility and settlement of liabilities.

Net Income/Loss. Our Net Income was $1,617,444 for the year ended December 31, 2020, compared to a Net Loss of $4,868,261 for the year ended December 31, 2019, an improvement of $6,485,705. The improvement is due primarily to the gain on sale of our facility and settlement of liabilities.

The improvement of $6,485,705 in Net Income/Loss for the year ended December 31, 2020 can be summarized in variances in significant account activity as follows:

	Decrease (Increase) to Net Loss For the Year Ended December 31, 2020 Compared to the Year Ended December 31, 2019
Revenues	(571,767)
Cost of Revenue	316,167
Research, development and manufacturing operations	145,755
Selling, general and administrative expenses	817,224
Depreciation and Amortization Expense	91,123
Other Income / Expense	
Other income	2,159,670
Interest expense	5,342,469
Non-Cash Change in Fair Value of Derivatives and Gain/Loss on Extinguishment of Liabilities, net	(1,814,936)
Improvement in Net Income/Loss	6,485,705

Liquidity and Capital Resources

The Company has continued limited PV production at its manufacturing facility. The Company does not expect that sales revenue and cash flows will be sufficient to support operations and cash requirements until it has fully implemented its product strategy. During the year ended December 31, 2020 the Company used $2,881,138 in cash for operations.

Additional projected product revenues are not anticipated to result in a positive cash flow position for the year 2021 overall and, as of December 31, 2020, the Company has negative working capital. As such, cash liquidity sufficient for the year ending December 31, 2021 will require additional financing.

The Company continues to accelerate sales and marketing efforts related to its military solar products and specialty PV application strategies through expansion of its sales and distribution channels. The Company has begun activities related to securing additional financing through strategic or financial investors, but there is no assurance the Company will be able to raise additional capital on acceptable terms or at all. If the Company's revenues do not increase rapidly, and/or additional financing is not obtained, the Company will be required to significantly curtail operations to reduce costs and/or sell assets. Such actions would likely have an adverse impact on the Company's future operations.

As a result of the Company’s recurring losses from operations, and the need for additional financing to fund its operating and capital requirements, there is uncertainty regarding the Company’s ability to maintain liquidity sufficient to operate its business effectively, which raises substantial doubt as to the Company’s ability to continue as a going concern. The Company has scaled down its operations, due to cash flow issues, and does not expect to ramp up until significant financing is obtained.

Management cannot provide any assurances that the Company will be successful in accomplishing any of its plans. These consolidated financial statements do not include any adjustments that might be necessary should the Company be unable to continue as a going concern.

Statements of Cash Flows Comparison of the Years Ended December 31, 2020 and 2019

For the year ended December 31, 2020, our cash used in operations was $2,881,138 compared to $2,715,418 for the year ended December 31, 2019, an increase of $165,720. The increase is due primarily to our recapitalization and restructuring effort which began in June 2020. For the year ended December 31, 2020, cash provided by investing activities was $254,444 compared to cash provided by investing activities of $827,491 for the year ended December 31, 2019. This change was primarily the result of a decrease in proceeds from the sale of assets. During the year ended December 31, 2020, negative operating cash flows of $2,881,138 were primarily funded through $2,500,000 in preferred stock issuances.

Off Balance Sheet Transactions

As of December 31, 2020, we did not have any off-balance sheet arrangements as defined in Item 303(a)(4)(ii) of Regulation S-K.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Foreign Currency Exchange Risk

We hold no significant funds and have no future obligations denominated in foreign currencies as of December 31, 2020.

Although our reporting currency is the U.S. Dollar, we may conduct business and incur costs in the local currencies of other countries in which we may operate, make sales and buy materials. As a result, we are subject to currency translation risk. Further, changes in exchange rates between foreign currencies and the U.S. Dollar could affect our future net sales and cost of sales and could result in exchange losses.

Interest Rate Risk

Our exposure to market risks for changes in interest rates relates primarily to our cash equivalents and investment portfolio. As of December 31, 2020, our cash equivalents consisted only of operating accounts held with financial institutions. From time to time, we hold restricted funds, money market funds, investments in U.S. government securities and high-quality corporate securities. The primary objective of our investment activities is to preserve principal and provide liquidity on demand, while at the same time maximizing the income we receive from our investments without significantly increasing risk. The direct risk to us associated with fluctuating interest rates is limited to our investment portfolio, and we do not believe a change in interest rates will have a significant impact on our financial position, results of operations, or cash flows.

Item 8. Financial Statements and Supplementary Data

The Financial Statements and Supplementary Data required by this item are included in Part IV, Item 15(a)(1) and are presented beginning on Page F-1.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures designed to ensure that information required to be disclosed in our reports filed or submitted under the Securities Exchange Act of 1934, as amended (the "Exchange Act") is recorded, processed, summarized and reported within the time periods specified in Securities and Exchange Commission rules and forms. Our disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed in our reports filed under the Exchange Act is accumulated and communicated to management as appropriate to allow timely decisions regarding required disclosures. Our management conducted an evaluation required by Rules 13a-15 and 15d-15 under the Exchange Act of the effectiveness of our disclosure controls and procedures as defined in Rules 13a-15 and 15d-15 under the Exchange Act as of December 31, 2020. Based on this evaluation, our management concluded the design and operation of our disclosure controls and procedures were not effective as of December 31, 2020.

Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. Our system of internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles ("GAAP") in the United States of America and includes those policies and procedures that:

- pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of our assets;
- provide reasonable assurance transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and our receipts and expenditures are being made only in accordance with authorizations of our management and directors; and
- provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on our financial statements.

Under the supervision of the Audit Committee of the Board of Directors and with the participation of our management, including our Chief Executive Officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting using the criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on this evaluation, our management concluded our internal control over financial reporting were not effective as of December 31, 2020. Our management reviewed the results of its assessment with the Audit Committee.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

A material weakness is a deficiency, or combination of deficiencies, in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of the Company's annual or interim financial statements will not be prevented or detected on a timely basis.

Material Weakness Identified in 2020

Based on our assessment and the criteria used, management concluded that our internal control over financial reporting as of December 31, 2020 and December 31, 2019 was not effective due to the material weaknesses described as follows:

- The Company was understaffed and did not have sufficiently trained resources with the technical expertise to ensure that all company transactions were accounted for in accordance with GAAP. This deficiency arose primarily from staff turnover and the inability of the Company to devote sufficient replacement resources in a timely manner, as a result of the Company's financial situation

As a consequence, the Company did not have effective process level control activities over the following:

- Accounting for the Company's inventory and cost of revenue was lacking for the preparation of the December 31, 2020 and December 31, 2019 financial statements. Miscalculations in these areas could impact the Company's current assets, revenues, operating results, and cash flows.
- Accounting for the Company's debt and equity securities was lacking for preparation of the December 31, 2020 and December 31, 2019 financial statements. Miscalculations in this area could impact the Company's liability, equity, and other expenses.

The control deficiencies described above created a reasonable possibility that a material misstatement to the consolidated financial statements would not be prevented or detected on a timely basis for the fiscal years ended December 31, 2020 and 2019.

Remediation Plan for Material Weaknesses in Internal Control over Financial Reporting

The Company's financial challenges continued during most of the year ended December 31, 2020, however, the Company received funding during the second half of 2020 and began to bring the Company back into operating status. The Company executed, or is in the process of executing, the following steps, to remediate the aforementioned material weaknesses in its internal control over financial reporting:

- During the fourth quarter of 2020, the Company hired a new Chief Financial Officer.
- The company significantly reduced the complexity of the debt structure through consolidation and simplifying of terms thereby lowering the associated administration and cost burden.
- The Company is in the process of engaging a resource with the technical expertise to track and report on inventory transactions and cost of revenue calculations.
- The Company will design and implement additional procedures in 2021 in order to assure that the resources mentioned above and other audit/accounting personnel are more involved with the Company's inventory activities, cost of revenue allocations, and debt and equity securities to monitor and earlier identify accounting issues that may be raised by the Company's ongoing activities.

Changes in Internal Control Over Financial Reporting

Except for the identification and mitigation of the material weaknesses noted above, there were no other changes in internal control over financial reporting during the year ended December 31, 2020 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

EXECUTIVE OFFICERS AND DIRECTORS

Our executive officers, continuing directors and director nominees, their ages and positions with us as of January 29, 2021, are as follows:

Name	Age	Position
Victor Lee	53	President and Chief Executive Officer, Director
Michael Gilbreth	44	Chief Financial Officer
Amit Kumar, Ph.D.	56	Chairman of the Board, Director
David Peterson	51	Director
Kim Huntley	66	Director
Will Clarke	53	Director

Victor Lee (Lee Kong Hian) has been the President and Chief Executive Officer of Ascent Solar Technologies Inc. since February 1, 2012 and as a member of our Board since November 2011. Mr. Lee is the managing director of Tertius Financial Group Pte Ltd, a boutique corporate advisory and private investment firm he founded in February 2009. He brings more than 25 years of experience in strategic planning, sales & marketing, corporate finance, real estate finance and investment management, and corporate advisory services at leading worldwide financial institutions. Mr. Lee began his career at Citibank N.A., in 1993, handling small-and medium-sized corporate finance and progressed to a vice president position in the International Personal Banking Division. In 1999 he moved to Deutsche Bank AG as Vice President and in 2004 was promoted to managing director Singapore Market Head in the Private Wealth Management Division, where he was responsible for management of approximately $1 Billion in assets. From 2007 until 2009, he was with Morgan Stanley Private Wealth Management, most recently as executive director and head of Singapore/Malaysia markets. Mr. Lee holds a Bachelor's degree in Accounting from the University of Wisconsin and a Master's in Wealth Management from the Singapore Management University.

Michael Gilbreth has been Chief Financial Officer of Ascent Solar Technologies Inc. since October 2020. Mr. Gilbreth is a financial executive with more than 15 years of experience in accounting and business management, consumer packaged goods, e-commerce, and financial consulting. In April 2020, Mr. Gilbreth formed a financial consulting company, PVMG Advisors, Inc., which provides financial and business consulting services. While at PVMG, Mr. Gilbreth provided consulting services to Crowdex Investment, LLC in connection with the Company’s recent restructuring and recapitalization process. Previously, from 2015 to January 2020, Mr. Gilbreth was Vice President of Finance at Candy Club Holding Limited (ASX: CLB) headquartered in Los Angeles, California. Candy Club is a leading specialty market confectionery company which operates in the business-to-business (B2B) and business-to-customer (B2C) segments in the United States. In this lead finance role at Candy Club, Mr. Gilbreth supported the company’s capital raising activities, including a successful initial public offering on the Australian Stock Exchange (ASX) in February 2019. From 2013 to 2015, Mr. Gilbreth operated Gilbreth Consulting, which provides financial and operational management consulting services, and strategic and operational planning services. From 2010 to 2013, Mr. Gilbreth was VP/Finance at MediaTrust, a performance marketing company based in southern California. From 2005 to 2010, Mr. Gilbreth was a business manager at Duban Sattler and Associates LLP, a boutique tax accounting and business management firm based in southern California which represents high net worth individuals. Mr. Gilbreth holds a Bachelor’s degree in Business Administration from California State University, Chico. Mr. Gilbreth and David Peterson are cousins.

Amit Kumar, Ph.D. has served on our Board of Directors since June 2007 and as Chairman since January 2011. Dr. Kumar is currently Chairman, President and CEO of Anixa Biosciences (NASDAQ:ANIX), a publicly held biotechnology company. From December 2010 to June 2015, Dr. Kumar was President and CEO of Geo Fossil Fuels, a privately held energy company. From September 2001 until June 30, 2010, Dr. Kumar was President and CEO of CombiMatrix Corporation (NASDAQ: CBMX). Previously, Dr. Kumar was Vice President of Life Sciences of Acacia Research Corp (NASDAQ: ACTG). From January 1999 to February 2000, Dr. Kumar was the founding President and Chief Executive Officer of Signature BioSciences, Inc., a life science company developing technology for advanced research in genomics, proteomics and drug discovery. From January 1998 to December 1999, Dr. Kumar was an Entrepreneur in Residence with Oak Investment Partners, a venture capital firm. From October 1996 to January 1998, Dr. Kumar was a Senior Manager at IDEXX Laboratories, Inc., a biotechnology company. From October 1993 to September 1996, Dr. Kumar was Head of Research & Development for Idetek Corporation,

which was later acquired by IDEXX Laboratories, Inc. Dr. Kumar received his B.S. degree in chemistry from Occidental College. After joint studies at Stanford University and the California Institute of Technology, he received his Ph.D. in Chemistry from Caltech in 1991. He also completed a post-doctoral fellowship at Harvard University in 1993. Dr. Kumar has authored and co-authored over 40 peer-reviewed publications and holds a dozen patents. Dr. Kumar brings significant leadership experience as well as experience in photovoltaic research including work on energy conversion using cells made from silicon (single crystal, polycrystalline, and amorphous), gallium arsenide, indium phosphide, metal oxides and other materials. Dr. Kumar is a member of the Board of Directors of Actym Therapeutics, a private biotechnology company.

Kim J. Huntley has served on our Board of Directors since June 2010. Mr. Huntley served in the Defense Logistics Agency (DLA) of the U.S. Department of Defense (DOD) for more than 32 years in positions of increasing responsibility. Most recently, from July 2008 until his retirement in January 2010, Mr. Huntley served as Director of the Defense Energy Support Center (DESC) in Fort Belvoir, Virginia. The DESC operates as part of the DLA and is responsible for providing energy solutions to the DOD and federal civilian agencies. As Director of the DESC, Mr. Huntley was the principal executive officer in charge of approximately 1,100 employees worldwide and over $25 billion in annual appropriations involving energy infrastructure and products. From March 2006 and immediately prior to becoming Director of the DESC, Mr. Huntley served in leadership roles involving supply chain management, including Deputy Commander for the Defense Supply Center in Richmond, Virginia and Columbus, Ohio, and as Executive Director of Customer Support and Readiness. From December 2003 to March 2006, Mr. Huntley served as Chief of the Customer Support Office in Fort Belvoir, Virginia. Mr. Huntley chaired the Inter Agency Working Group for Alternative Fuels and Renewable Energy from January 2009 to January 2010. The Group included senior energy representatives from DOD, DOE, EPA, and other major Federal Agencies. Mr. Huntley holds a B.A. degree in Economics from Golden Gate University and attended post-graduate courses in economics at California State University, Hayward. Mr. Huntley brings extensive supply chain, budget and defense industry experience to our Board.

David Peterson has served on our Board of Directors since December 2020. Mr. Peterson has over 25 years of business management experience, including 8 years as a private equity investor, 5 years as a manager at an engineering consulting firm, and over 20 years of board experience. From April 2015 to present, Mr. Peterson has worked for EPD Consultants, Inc., a privately held engineering firm headquartered in Carson, California, where he serves as Senior Project Manager. From 2010 to 2015, Mr. Peterson was President and Co-Founder of Great Circle Industries, Inc., a water recycling company in southern California. His past experience includes being a board member at AIR-serv, LLC, a tire inflation vending machine manufacturer, where Mr. Peterson managed the acquisition process, including obtaining expansion of the company's credit facility, as that company completed 10 acquisitions and grew from $10 million of EBITDA to $20 million of EBITDA in the year prior to its sale for $151 million to WindPoint Partners. Mr. Peterson has an MBA degree from the Marshall School of Business at the University of Southern California, and a B.A. from the University of California, Santa Cruz. Mr. Peterson is currently the Manager of Crowdex Investment, LLC, a significant equity investor in the Company. Mr. Peterson and Michael Gilbreth are cousins.

Will Clarke has served on our Board of Directors since December 2020. Since 2020, Mr. Clarke has been the Founder and President of Clarke Growth and Sustainment Strategies, an advisory firm specializing in guiding startup and early stage companies' business expansion. From 2018 to 2020, Mr. Clarke was Head of Global Supply Chain Management and Technical Procurement for Atlas Airlines Worldwide Holdings, Inc. (NASDAQ: AAWW), a leading global provider of outsourced aircraft and aviation operating services headquartered in Purchase, NY. From 2015 to 2017, Mr. Clarke was Director of Procurement at Best Buy Co., Inc. (NYSE: BBY), a provider of technology products, services and solutions to its customers through over 1,400 retail stores, and also through its websites and mobile applications. Best Buy is headquartered in Richfield, MN and has operations in the United States, Canada and Mexico. Prior to launching his second career in 2015, Mr. Clarke served 25 years as an Officer in the U.S. Navy, where he completed 10 deployments in support of war and peacetime operations on two aircraft carriers, one submarine, one warship and one on land. Mr. Clarke served in a number of senior finance, supply chain, procurement and logistics assignments across East Africa, Asia/Pacific, and the United States while serving in the U.S. Navy, where he attained the rank of Captain (O6). Mr. Clarke earned a B.S. in Mathematics from the U.S. Naval Academy, an M.S. in Finance and Contracts Management from the Naval Postgraduate School and has completed the Executive Development Program at Wharton Business School and the Corporate Governance Program at Columbia Business School.

CORPORATE GOVERNANCE

Overview

Our Bylaws provide that the size of our Board of Directors is to be determined from time to time by resolution of the Board of Directors, but shall consist of at least two and no more than nine members. Our Board of Directors currently consists of five members. The Board has determined that the following directors are "independent" as required by the listing standards of the OTC Market and by our corporate governance guidelines: Dr. Kumar, Mr. Huntley and Mr. Clarke.

Our Certificate of Incorporation provides that the Board of Directors will be divided into three classes. Our Class 1 director is Dr. Amit Kumar. Our Class 2 directors are Kim J. Huntley and Will Clarke. Our Class 3 directors are David Peterson and Victor Lee.

Board Leadership Structure and Role in Risk Oversight

We currently separate the roles of Chairman of the Board and Chief Executive Officer. We believe that Dr. Kumar possesses the strategic, technical and industry knowledge and expertise to serve as our Chairman. As President and Chief Executive Officer, Mr. Lee is responsible for day-to-day oversight of our operations and personnel. Notwithstanding the foregoing, our Board does not have a formal policy regarding separation of the Chairman and Chief Executive Officer roles, and the Board may in the future decide to implement such a policy if it deems it in the best interests of us and our stockholders. The Board does not have a lead independent director.

Risk is inherent with every business, and how well a business manages risk can ultimately determine its success. We face a number of risks, including credit risk, interest rate risk, liquidity risk, operational risk, strategic risk and reputation risk. Management is responsible for the day-to-day management of risks we face, while the Board, as a whole and through its committees, has responsibility for the oversight of risk management. In its risk oversight role, the Board of Directors has the responsibility to satisfy itself that the risk management processes designed and implemented by management are adequate and functioning as designed. To do this, the Chairman of the Board meets regularly with management to discuss strategy and the risks we face. In addition, the Audit Committee regularly monitors our enterprise risk, including financial risks, through reports from management. Senior management attends the Board meetings and is available to address any questions or concerns raised by the Board on risk management and any other matters. The Chairman of the Board and independent members of the Board work together to provide strong, independent oversight of our management and affairs through the Board's standing committees and, when necessary, executive sessions of the independent directors.

Committees of the Board of Directors

Our Board has three standing committees: an Audit Committee, a Compensation Committee, and a Nominating and Governance Committee. Each committee operates pursuant to a charter. The charters of the Audit Committee, the Compensation Committee, and the Nominating and Governance Committee can be found on our website www.ascentsolar.com.

Audit Committee. Our Audit Committee oversees our accounting and financial reporting processes, internal systems of accounting and financial controls, relationships with independent auditors, and audits of financial statements. Specific responsibilities include the following:

- selecting, hiring and terminating our independent auditors;
- evaluating the qualifications, independence and performance of our independent auditors;
- approving the audit and non-audit services to be performed by our independent auditors;
- reviewing the design, implementation, adequacy and effectiveness of our internal controls and critical accounting policies;
- reviewing and monitoring the enterprise risk management process;
- overseeing and monitoring the integrity of our financial statements and our compliance with legal and regulatory requirements as they relate to financial statements or accounting matters;
- reviewing, with management and our independent auditors, any earnings announcements and other public announcements regarding our results of operations; and
- preparing the report that the SEC requires in our annual proxy statement.

Our Audit Committee is comprised of Mr. Huntley, Dr. Kumar and Mr. Clarke. Mr. Huntley serves as Chairman of the Audit Committee. The Board has determined that all members of the Audit Committee are independent under the rules of the OTC Market, and that Mr. Huntley qualifies as an "audit committee financial expert," as defined by the rules of the SEC.

Compensation Committee. Our Compensation Committee assists our Board in determining the development plans and compensation of our officers, directors and employees. Specific responsibilities include the following:

- approving the compensation and benefits of our executive officers;
- reviewing the performance objectives and actual performance of our officers; and
- administering our stock option and other equity compensation plans.

The Compensation Committee reviews all components of compensation including base salary, bonus, equity compensation, benefits and other perquisites. In addition to reviewing competitive market values, the Compensation Committee also examines the total compensation mix, pay-for-performance relationship and how all elements, in the aggregate, comprise the executives' total compensation package. The CEO makes recommendations to the Compensation Committee from time to time regarding the appropriate mix and level of compensation for other officers. Those recommendations consider the objectives of our compensation philosophy and the range of compensation programs authorized by the Compensation Committee. The Compensation Committee may determine director compensation by reviewing peer group data. Although the Compensation Committee has the authority to retain outside third parties, it does not currently utilize any outside consultants. The Compensation Committee may delegate certain of its responsibilities, as it deems appropriate, to other committees or officers.

Our Compensation Committee is comprised of Mr. Clarke, Mr. Huntley and Dr. Kumar. Mr. Clarke serves as Chairman of the Compensation Committee.

Our Board has determined that all members of the Compensation Committee are independent under the rules of the OTC Market.

Nominating and Governance Committee. Our Nominating and Governance Committee assists our Board by identifying and recommending individuals qualified to become members of our Board, reviewing correspondence from our stockholders, and establishing, evaluating and overseeing our corporate governance guidelines. Specific responsibilities include the following:

- evaluating the composition, size and governance of our Board and its committees and making recommendations regarding future planning and the appointment of directors to our committees;
- establishing a policy for considering stockholder nominees for election to our Board; and
- evaluating and recommending candidates for election to our Board.

Our Nominating and Governance Committee is comprised of Dr. Kumar, Mr. Huntley, and Mr. Clarke. Dr. Kumar serves as Chairman of our Nominating and Governance Committee. Our Board has determined that all members of the Nominating and Governance Committee are independent under the rules of OTC Market.

When considering potential director candidates for nomination or election, the following characteristics are considered in accordance with our

Nominating and Governance Committee Charter:

- high standard of personal and professional ethics, integrity and values;
- training, experience and ability at making and overseeing policy in business, government and/or education sectors;
- willingness and ability to keep an open mind when considering matters affecting interests of us and our constituents;
- willingness and ability to devote the time and effort required to effectively fulfill the duties and responsibilities related to the Board and its committees;
- willingness and ability to serve on the Board for multiple terms, if nominated and elected, to enable development of a deeper understanding of our business affairs;

- willingness not to engage in activities or interests that may create a conflict of interest with a director's responsibilities and duties to us and our constituents; and
- willingness to act in the best interests of us and our constituents, and objectively assess Board, committee and management performances.

In addition, in order to maintain an effective mix of skills and backgrounds among the members of our Board, the following characteristics also may be considered when filling vacancies or identifying candidates:

- diversity (e.g., age, geography, professional, other);
- professional experience;
- industry knowledge (e.g., relevant industry or trade association participation);
- skills and expertise (e.g., accounting or financial);
- leadership qualities;
- public company board and committee experience;
- non-business-related activities and experience (e.g., academic, civic, public interest);
- continuity (including succession planning);
- size of the Board;
- number and type of committees, and committee sizes; and
- legal and other applicable requirements and recommendations, and other corporate governance-related guidance regarding Board and committee composition.

The Nominating and Governance Committee will consider candidates recommended by stockholders who follow the nomination procedures in our bylaws. The Nominating and Governance Committee does not have a formal policy with respect to diversity; however, as noted above, the Board and the Nominating and Governance Committee believe that it is essential that Board members represent diverse viewpoints**.**

Number of Meetings

The Board held a total of one meeting in 2020. Our Audit Committee held one meeting, our Compensation Committee held one meeting, and our Nominating and Governance Committee held one meeting in 2020. Each director attended at least 75% of the aggregate of the total number of meetings of the Board and the Board committees on which he served.

Board Member Attendance at Annual Stockholder Meetings

Although we do not have a formal policy regarding director attendance at annual stockholder meetings, directors are encouraged to attend these annual meetings absent extenuating circumstances. We did not hold our annual meeting during 2019.

Stockholder Nominations

In accordance with our Bylaws, a stockholder wishing to nominate a director for election at an annual or special meeting of stockholders must timely submit a written proposal of nomination to us at our executive offices. To be timely, a written proposal of nomination for an annual meeting of stockholders must be received at least 90 calendar days but no more than 120 calendar days before the first anniversary of the date on which we held our annual meeting of stockholders in the immediately preceding year; *provided*, *however*, that in the event that the date of the annual meeting is advanced or delayed more than 30 calendar days from the anniversary of the annual meeting of stockholders in the immediately preceding year, the written proposal must be received: (i) at least 90 calendar days but no more than 120 calendar days prior to the date of the annual meeting; or (ii) no more than 10 days after the date we first publicly announce the date of the annual meeting. A written proposal of nomination for a special meeting of stockholders must be received no earlier than 120 calendar days prior to the date of the special meeting nor any later than the later of: (i) 90 calendar days prior to the date of the special meeting; and (ii) 10 days after the date we first publicly announce the date of the special meeting.

Each written proposal for a nominee must contain: (i) the name, age, business address and telephone number, and residence address and telephone number of the nominee; (ii) the current principal occupation or employment of each nominee, and the principal occupation or employment of each nominee for the prior ten (10) years; (iii) a complete list of companies, whether publicly traded or privately held, on which the nominee serves (or, during any of the prior ten (10) years, has served) as a member of the board of directors; (iv) the number of shares of our common stock that are owned of record and beneficially by each nominee; (v) a statement whether the nominee, if elected, intends to tender, promptly following such person's failure to receive the required vote for election or reelection at the next meeting at which the nominee would face election or reelection, an irrevocable resignation effective upon acceptance of such resignation by the Board; (vi) a completed and signed questionnaire, representation and agreement relating to voting agreements or commitments to which the nominee is a party; (vii) other information concerning the nominee that would be required in a proxy statement soliciting the nominee's election; and (viii) information about, and representations from, the stockholder making the nomination.

A stockholder interested in submitting a nominee for election to the Board of Directors should refer to our Bylaws for additional requirements. Upon receipt of a written proposal of nomination meeting these requirements, the Nominating and Governance Committee of the Board will evaluate the nominee in accordance with its charter and the characteristics listed above.

Director Compensation

In 2020, our independent directors each agreed to serve without any cash or equity compensation (except for the compensation shown in the table below) until such time as the Company's financial and cash position improved.

The following Director Compensation Table summarizes the compensation of each of our non-employee directors for services rendered to us during the year ended December 31, 2020:

2020 Director Compensation Table

Name	Fees Earned or Paid in Cash ($)	Stock Awards ($)	All Other Comp ($)	Total ($)
Amit Kumar	12,500	-	-	12,500
Kim Huntley	10,000	-	-	10,000
Will Clarke	3,334	-	-	3,334
David Peterson	-	-	-	-
Victor Lee	-	-	-	-

In addition to the fees listed above, we reimburse the directors for travel expenses submitted to us related to their attendance at meetings of the Board or its committees. The directors did not receive any other compensation or personal benefits.

Code of Ethics

We have adopted a code of ethics that applies to our principal executive officer, principal financial officer, principal accounting officer and other senior finance and accounting staff. The code is designed to, among other things, deter wrongdoing and to promote the honest and ethical conduct of our officers and employees. The text of our code of ethics can be found on our Internet website at www.ascentsolar.com. If we effect an amendment to, or waiver from, a provision of our code of ethics, we intend to satisfy our disclosure requirements by posting a description of such amendment or waiver on that Internet website or via a current report on Form 8-K.

Communication with the Board of Directors

Stockholders may communicate with the Board by sending correspondence to our Chairman, c/o the Corporate Secretary, at our corporate address on the cover of this Form 10-K. It is our practice to forward all such correspondence to our Chairman, who is responsible for determining whether to relay the correspondence to the other members of the Board.

Item 11. Executive Compensation

Compensation of Executive Officers in 2020

The following Summary Compensation Table sets forth certain information regarding the compensation of our principal executive officer for services rendered in all capacities to us during the years ended December 31, 2020 and 2019.

Summary Compensation Table

Name and Principal Position	Year	Salary ($)	Bonus ($)	Stock Awards ($)	Option Awards ($)	All Other Comp ($)	Total ($)
Victor Lee - Chief Executive Officer (1)	2020	96,903	-	-	-	-	96,903
	2019	184,052	-	-	-	-	184,052

Executive Employment Agreements

On April 4, 2014, we entered into an employment agreement with Mr. Lee. The employment agreement provides that Mr. Lee will receive an annual base salary of $300,000, subject to annual adjustments as determined by our board. Mr. Lee will also be eligible for an annual bonus of up to 100% of his base salary as determined at the sole discretion of our board or compensation committee. Under this agreement, if the Company terminates Mr. Lee without cause, Mr. Lee is entitled to receive twelve months of base salary from the date of termination. In addition, if Mr. Lee is terminated without Cause, an additional portion of his stock options will become vested. In addition, the employment agreement provides that Mr. Lee is eligible to participate in the Company's standard benefit plans and programs.

As provided in the employment agreement, Mr. Lee was granted stock options to purchase 1 shares of the Company's common stock. These options vest in four equal annual installments on the first, second, third and fourth anniversaries of the employment agreement date, with an exercise price of $110,000 per share. These options expire on April 4, 2024.

(1) Mr. Lee's employment agreement provides for a minimum annual salary of $300,000, which salary was increased to $330,000 in 2016. Due to liquidity constraints, Mr. Lee agreed to limit his salary for 2019 and 2020 to the amounts shown in the summary compensation table above. For the 2021 year, Mr. Lee has agreed to an annual salary of $165,000.

On October 5, 2020, the Company appointed Michael Gilbreth to serve as the Chief Financial Officer of the Company. The Company hired Mr. Gilbreth pursuant to the terms of a letter agreement and a standard and customary confidentiality, non-competition, and no-solicitation agreement. The letter agreement provides for at-will employment with an annual base salary of $165,000, and an annual discretionary bonus of up to 60% of base salary.

The following table sets forth information concerning the outstanding equity awards granted to the named executive officer as of May 13, 2021.

Outstanding Equity Awards at Fiscal Year-End 2020

	Option Awards				Stock Awards	
	Number of Securities Underlying Unexercised Options (#)		Option Exercise Price ($/sh)	Option Expiration Date	Number of Shares or Units of Stock That Have Not Vested	Market Value of Shares or Units of Stock That Have Not Vested
Name	**Exerciseable**	**Unexerciseable**				
Victor Lee (1)	1	-	130,000	3/1/2023	-	-
	1	-	110,000	4/4/2024	-	-
	10	-	20,200	2/11/2025	-	-
	5	-	12,200	6/18/2025	-	-
	10	-	1,200	3/10/2026	-	-

Vesting dates of securities underlying unexercised options and stock awards not yet vested as of January 29, 2021:

(1) $130,000.00 options - vested on 3/1/15. $110,000.00 Options - vested on 4/4/18. $20,200.20 Options - vested on 2/11/17. $12,200 Options - vested on 6/18/18. $1,200 options - vested on 3/10/18.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

Securities Authorized for Issuance under Equity Compensation Plans

The following table sets forth information as of December 31, 2020 relating to all of our equity compensation plans:

	Number of securities to be issued upon exercise of outstanding options, warrants and rights	Weighted average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plans
Equity compensation plans approved by security holders	110	$ 132,147	107

SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The following table shows information regarding the beneficial ownership of our common stock by our directors, executive officers, former executive officers and greater than 5% beneficial owners as of May 13, 2021.

Beneficial ownership is determined in accordance with the rules of the SEC and generally includes any shares over which a person exercises sole or shared voting or investment power and all shares issuable upon exercise of options or the vesting of restricted stock within 60 days of May 13, 2021. For purposes of calculating the percentage of our common stock beneficially owned, the number of shares of our common stock includes 18,345,583,471 shares of our common stock outstanding as of May 13, 2021.

Unless otherwise indicated, each of the stockholders listed below has sole voting and investment power with respect to the shares beneficially owned.

The address for each director or named executive officer is c/o Ascent Solar Technologies, Inc., 12300 North Grant Street, Thornton, Colorado 80241.

Name of Beneficial Owner	No. of Shares Beneficially Owned	Percentage
5% Stockholders:		
Crowdex Investments, LLC (1)	27,500,000,000	81.25%
BD 1 Investment Holding, LLC (2)	105,000,000,000	85.13%
TubeSolar AG (3)	25,000,000,000	57.68%
Named Executive Officers and Directors:		
Victor Lee (4)	62	*
Michael J. Gilbreth	-	*
Amit Kumar, Ph.D.	47	*
Kim J. Huntley	30	*
Will Clarke	-	*
David Peterson (5)	-	*
All directors and executive officers as a group (6 persons)	139	*

* Less than 1.0%

(1) The address of Crowdex Investments, LLC ("Crowdex") is 1675 South State Street, Suite B, Kent County, Delaware 19901. Consists of (i) 12,000,000,000 shares of common stock owned as of May 13, 2021, and (ii) 13,000,000,000 additional shares of common stock issuable, within sixty days of such date, upon the conversion 1,300 shares of Series 1A preferred stock. Includes 2,500,000,000 shares of common stock issuable upon the conversion of a certain convertible note. Such convertible note, however, contains a conversion limitation providing that Crowdex may not be issued shares of common stock upon conversion if, after giving effect to such issuance, Crowdex would beneficially own in excess of 4.99% of the Company's outstanding shares of common stock. Such convertible note would convert into 2,500,000,000 shares of common stock only if such 4.99% limitation were deemed not to apply. Bernd Förtsch is the 100% indirect beneficial owner of Crowdex.

(2) The address of BD 1 Investment Holdings, LLC (“BD 1”) is 1675 South State Street, Suite B, Kent County, Delaware 19901. Consists of shares of common stock issuable, within sixty days of January 29, 2021, upon the conversion of certain convertible notes. Johannes Kuhn is the indirect beneficial owner of BD 1.

(3) The address for TubeSolar AG (“TubeSolar”) is Berliner Allee 65, D – 86153 Augsburg, Germany. Consists of shares of common stock issuable, within sixty days of January 29, 2021, upon the conversion 2,500 shares of Series 1A preferred stock. Bernd Förtsch indirectly owns a controlling interest in TubeSolar.

(4) Does not include 333,334 shares of common stock held by Tertius Financial Group Pte. Ltd. (“Tertius”). Mr. Lee is managing director and a 100% owner of Tertius. Mr. Lee disclaims beneficial ownership of our securities held by Tertius except to the extent of his pecuniary interest.

(5) Mr. Peterson is the manager of Crowdex. Mr. Peterson disclaims beneficial ownership of any securities owned by Crowdex.

Item 13. Certain Relationships and Related Transactions, and Director Independence

RELATED PARTY TRANSACTIONS

Relationship with Crowdex and TubeSolar

Pursuant to their ownership of Common Stock and Series 1A Preferred Stock, Crowdex and TubeSolar together would be entitled to cast a majority of the votes on any matter to be considered by stockholders for approval at any meeting of stockholders of the Company (or by written consent of stockholders in lieu of meeting). Crowdex and

Tube, therefore, currently can control all matters requiring stockholder approval, including the election of directors and other significant corporate transactions.

Crowdex and TubeSolar are both indirectly beneficially owned and controlled by Bernd Förtsch.

On September 22, 2020, we entered into a securities purchase agreement ("Series 1A SPA") with Crowdex for the private placement of the Company's newly designated Series 1A Convertible Preferred Stock ("Series 1A Preferred Stock"). We sold 2,000 shares of Series 1A Preferred Stock to Crowdex in exchange for $2,000,000 of gross proceeds at an initial closing under the Series 1A SPA on September 22, 2020.

In November 2020, Crowdex converted 1,200 shares of outstanding Series 1A Preferred Stock into 12,000,000,000 shares of Common Stock.

On November 27, 2020, we issued to Crowdex a $500,000 unsecured convertible promissory note in a private placement and received $500,000 of gross proceeds from the offering. On December 31, 2020, we sold 500 shares of Series 1A Preferred Stock to Crowdex in exchange for the cancellation of the note issued on November 27, 2020. There were no additional cash proceeds from this closing.

Crowdex owns a $250,000 aggregate principal amount convertible promissory note of the Company. Crowdex acquired this note from the original noteholder in September 2020. The aggregate principal amount of this note (together with accrued interest) will mature on June 9, 2021. The note bears interest at a rate of 6% per annum. The interest rate increases to 18% in the event of a default under the Note. The note is convertible, at the holder's option, into shares of the Company's Common Stock at a conversion price equal to $0.0001 per share. However, the holder of the notes will not have the right to convert any portion of the note if the holder, together with its affiliates, would beneficially own in excess of 4.99% of the number of shares of the Common Stock outstanding immediately after giving effect to its conversion.

On January 4, 2021, the Company entered into a securities purchase agreement with TubeSolar. Pursuant to this securities purchase agreement, the Company sold 2,500 shares of Series 1A Preferred Stock to TubeSolar and received $2,500,000 of gross proceeds on January 5, 2021.

Relationship with BD 1

On December 18, 2020, the Company entered into a securities exchange agreement ("BD 1 Exchange Agreement") with BD 1. BD 1 had previously acquired all of the Company's existing outstanding unsecured notes (other than notes held by Global Ichiban and Crowdex described elsewhere in this Item 13) from the original note holders. Pursuant to the terms of the BD 1 Exchange Agreement, BD 1 agreed to surrender and exchange all of its outstanding promissory notes with principal balances of approximately $10.4 million (including accrued interest and default penalties). In exchange and without the payment of any additional consideration, the Company issued to BD 1 two unsecured convertible notes with an aggregate principal amount of $10,500,000 ("BD 1 Exchange Notes").

Johannes Kuhn is the indirect beneficial owner of BD 1.

The BD 1 Exchange Notes will mature on December 18, 2025. BD 1 has the right, at any time until the BD 1 Exchange Notes are fully paid, to convert any outstanding and unpaid principal and interest into shares of Common Stock at a fixed conversion price equal to $0.0001 per share. Accordingly, the Company would issue 105,000,000,000 shares of Common Stock upon a full conversion of the BD 1 Exchange Notes.

Relationship with Global Ichiban

On September 9, 2020, the Company entered into a securities exchange agreement ("GI Exchange Agreement") with Global Ichiban Limited, a British Virgin Islands corporation ("GI").

Pursuant to the terms of the GI Exchange Agreement, GI agreed to surrender and exchange all of its existing outstanding promissory notes with an aggregate principal balance of $6,374,666.57 (including accrued interest). In exchange, the Company issued to GI a secured convertible promissory note with a principal amount of $6,400,000 ("GI Exchange Note").

On March 9, 2021, the Company entered into a settlement agreement ("Settlement") with GI. Pursuant to the Settlement, the Company issued 168,000,000 shares of Common Stock of the Company ("Settlement Shares") to GI in exchange for the cancellation of the GI Exchange Note, which had an outstanding principal balance of $5,800,000. The GI Exchange Note, which was originally scheduled to mature on September 30, 2022, had a variable-rate conversion feature that entitled GI to convert into shares of Common Stock of the Company at 80% of the 5-day average closing bid-price prior to any conversion. The GI Exchange Note also had a lien on substantially all of the Company's assets including intellectual properties. Following the Settlement, the lien shall be removed and all of the Company's assets shall be unencumbered going forward.

Policies and Procedures with Respect to Transactions with Related Persons

The Board recognizes that related person transactions can present a heightened risk of potential or actual conflicts of interest. Accordingly, our Audit Committee charter requires that all such transactions will be reviewed and subject to approval by members of our Audit Committee, which will have access, at our expense, to our or independent legal counsel. Future transactions with our officers, directors or greater than five percent stockholders will be on terms no less favorable to us than could be obtained from independent third parties.

Director Independence

Our Board of Directors has determined that three out of our five directors are independent directors, as defined under the applicable rules of the OTC Market listing standards. The independent directors are Messrs. Kumar, Huntley and Clarke.

Item 14. Principal Accounting Fees and Services

PRINCIPAL ACCOUNTANTS

Fees for audit and related services by our accounting firm, Haynie & Company, for the years ended December 31, 2020 and 2019 were as follows:

	2020	2019
Audit fees	$ 155,500	$ 230,000
Audit related fees	29,236	39,000
Total audit and audit related fees	184,736	269,000
Tax fees	22,000	8,000
All other fees	-	-
Total Fees	$ 206,736	$ 277,000

Audit fees for Haynie & Company for fiscal year 2020 and 2019 represents aggregate fees for the 2020 and 2019 annual audit of the financial statements.

Audit Committee Pre-Approval Policies and Procedures

The Audit Committee charter provides that the Audit Committee will pre-approve all audit services and non-audit services to be provided by our independent auditors before the accountant is engaged to render these services. The Audit Committee may consult with management in the decision making process, but may not delegate this authority to management. The Audit Committee may delegate its authority to pre-approve services to one or more committee members, provided that the designees present the pre-approvals to the full committee at the next committee meeting. All audit and non-audit services performed by our independent accountants have been pre-approved by our Audit Committee to assure that such services do not impair the auditors' independence from us.

PART IV

Item 15. Exhibits and Financial Statement Schedules

(a) The following documents are filed as part of this Annual Report on Form 10-K:

(1) Financial Statements—See Index to Financial Statements at Item 8 of the Annual Report on Form 10-K.

(2) Financial Statement Schedules—Supplemental schedules are not provided because of the absence of conditions under which they are required or because the required information is given in the financial statements or notes thereto.

(3) Exhibits: See Item 15(b) below.

(b) Exhibits: The exhibits listed on the accompanying Index to Exhibits on this Form 10-K are filed or incorporated into this Form 10-K by reference.

INDEX TO EXHIBITS

Set forth below is a list of exhibits that are being filed or incorporated by reference into this Annual Report on Form 10-K:

Exhibit No.	Description
3.1	Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.2 to our Registration Statement on Form SB-2 filed on January 23, 2006 (Reg. No. 333-131216))
3.2	Certificate of Amendment to the Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.1 to our Quarterly Report on Form 10-Q for the quarter ended September 30, 2011)
3.3	Certificate of Amendment to the Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed February 11, 2014)
3.4	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated August 26, 2014. (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed September 2, 2014)
3.5	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated October 27, 2014 (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K dated October 28, 2014)
3.6	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated December 22, 2014. (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K dated December 23, 2014)
3.7	Second Amended and Restated Bylaws (incorporated by reference to Exhibit 3.2 to our Current Report on Form 8-K filed on February 17, 2009)
3.8	First Amendment to Second Amended and Restated Bylaws (incorporated by reference to Exhibit 3.3 to our Quarterly Report on Form 10-Q for the quarter ended September 30, 2009)
3.9	Second Amendment to Second Amended and Restated Bylaws (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed January 25, 2013)
3.10	Third Amendment to Second Amended and Restated Bylaws (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed December 18, 2015)
3.11	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated May 26, 2016 (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed June 2, 2016)
3.12	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated September 15, 2016 (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed September 16, 2016)
3.13	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated March 16, 2017 (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed March 17, 2017)
3.14	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated July 19, 2018 (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed July 23, 2018)
3.15	Certificate of Designations of Preferences, Rights, and Limitations of Series 1A Convertible Preferred Stock (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed September 30, 2020)
4.1	Form of Common Stock Certificate (incorporated by reference to Exhibit 4.1 to our Registration Statement on Form SB-2/A filed on June 6, 2006 (Reg. No. 333-131216))
4.2	Certificate of Designations of Series A Preferred Stock (filed as Exhibit 4.2 to our Registration Statement on Form S-3 filed July 1, 2013 (Reg. No. 333-189739))
4.3	Description of Securities*
10.1	Securities Purchase Agreement, dated January 17, 2006, between the Company and ITN Energy Systems, Inc. (incorporated by reference to Exhibit 10.1 to our Registration Statement on Form SB-2 filed on January 23, 2006 (Reg. No. 333-131216))CTR
10.2	Invention and Trade Secret Assignment Agreement, dated January 17, 2006, between the Company and ITN Energy Systems, Inc. (incorporated by reference to Exhibit 10.2 to our Registration Statement on Form SB-2 filed on January 23, 2006 (Reg. No. 333-131216))CTR
10.3	Patent Application Assignment Agreement, dated January 17, 2006, between the Company and ITN Energy Systems, Inc. (incorporated by reference to Exhibit 10.3 to our Registration Statement on Form SB-2 filed on January 23, 2006 (Reg. No. 333-131216))
10.4	License Agreement, dated January 17, 2006, between the Company and ITN Energy Systems, Inc. (incorporated by reference to Exhibit 10.4 to our Registration Statement on Form SB-2 filed on January 23, 2006 (Reg. No. 333-131216))CTR

10.5	Letter Agreement, dated November 23, 2005, among the Company, ITN Energy Systems, Inc. and the University of Delaware (incorporated by reference to Exhibit 10.16 to our Registration Statement on Form SB-2/A filed on May 26, 2006 (Reg. No. 333-131216))
10.6	License Agreement, dated November 21, 2006, between the Company and UD Technology Corporation (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on November 29, 2006)CTR
10.7	Novation Agreement, dated January 1, 2007, among the Company, ITN Energy Systems, Inc. and the United States Government (incorporated by reference to Exhibit 10.23 to our Annual Report on Form 10-KSB for the year ended December 31, 2006)
10.8†	Executive Employment Agreement, dated April 4, 2014, between the Company and Victor Lee (filed as Exhibit 10.1 to our Current Report on Form 8-K filed on April 9, 2014) †
10.9†	Seventh Amended and Restated 2005 Stock Option Plan (incorporated by reference to Annex B of our definitive proxy statement dated April 22, 2016)†
10.10†	Seventh Amended and Restated 2008 Restricted Stock Plan Stock Option Plan Plan (incorporated by reference to Annex A of our definitive proxy statement dated April 22, 2016)†
10.11	Security Agreement dated November 30, 2017 (incorporated by reference to Exhibit 10.65 to our Annual Report on Form 10-K filed March 29, 2018)
10.12	Securities Purchase Agreement dated February 14, 2019 (incorporated by reference to Exhibit 10.98 to our Annual Report on Form 10-K filed on April 16, 2019)
10.13	Convertible Promissory Note dated February 14, 2019 (incorporated by reference to Exhibit 10.99 to our Annual Report on Form 10-K filed on April 16, 2019)
10.14	GS Capital Partners Convertible Redeemable Note dated February 22, 2019 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on February 28, 2019)
10.15	GS Capital Partners Securities Purchase Agreement dated February 22, 2019 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on February 28, 2019)
10.16	Securities Purchase Agreement dated March 7, 2019 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on March 13, 2019)
10.17	Convertible Promissory Note dated March 7, 2019 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on March 13, 2019)
10.18	Exchange Agreement I dated March 11, 2019 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on March 15, 2019)
10.19	Convertible Promissory Note dated March 11, 2019 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on March 15, 2019)
10.20	Exchange Agreement II dated March 11, 2019 (incorporated by reference to Exhibit 10.3 to our Current Report on Form 8-K filed on March 15, 2019)
10.21	Convertible Promissory Note dated March 11, 2019 (incorporated by reference to Exhibit 10.4 to our Current Report on Form 8-K filed on March 15, 2019)
10.22	Non-Convertible Promissory Note dated March 11, 2019 (incorporated by reference to Exhibit 10.5 to our Current Report on Form 8-K filed on March 15, 2019)
10.23	Securities Purchase Agreement dated March 13, 2019 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on March 22, 2019)
10.24	Secured Convertible Promissory Note dated March 13, 2019 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on March 22, 2019)
10.25	Purchase and Sale Agreement dated April 12, 2019 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on April 18, 2019)
10.26	Securities Purchase Agreement dated May 2, 2019 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on May 8, 2019)
10.27	Convertible Promissory Note dated May 2, 2019 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on May 8, 2019)
10.28	Exchange Agreement dated May 2, 2019 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on May 8, 2019)
10.29	Convertible Promissory Note dated May 2, 2019 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on May 8, 2019)
10.30	Non-Convertible Promissory Note dated May 14, 2019 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on May 17, 2019)
10.31	Non-Convertible Promissory Note dated July 8, 2019 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on July 12, 2019)
10.32	Exchange Agreement dated August 22, 2019 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on August 28, 2019)

10.33	Convertible Exchange Promissory Note dated August 22, 2019 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on August 28, 2019)
10.34	Non-Convertible Promissory Note dated August 22, 2019 (incorporated by reference to Exhibit 10.3 to our Current Report on Form 8-K filed on August 28, 2019)
10.35	Securities Purchase Agreement dated August 26, 2019 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on August 30, 2019)
10.36	Convertible Promissory Note dated August 26, 2019 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on August 30, 2019)
10.37	Non-Convertible Promissory Note dated September 9, 2019 (incorporated by reference to Exhibit 10.3 to our Current Report on Form 8-K filed on September 13, 2019)
10.38	Exchange Agreement dated October 22, 2019 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on November 12, 2019)
10.39	Convertible Exchange Promissory Note dated October 22, 2019 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on November 12, 2019)
10.40	Convertible Promissory Note dated June 9, 2020 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on June 22, 2020)
10.41	Unsecured Convertible Note dated November 27, 2020 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on December 4, 2020)
10.42	GI Exchange Agreement dated September 9, 2020 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on December 28, 2020)
10.43	GI Exchange Note dated September 9, 2020 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on December 28, 2020)
10.44	Series 1A Securities Purchase Agreement dated September 22, 2020 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on September 30, 2020)
10.45	BD1 Exchange Agreement dated December 18, 2020 (incorporated by reference to Exhibit 10.3 to our Current Report on Form 8-K filed on December 28, 2020)
10.46	BD1 Exchange Note dated December 18, 2020 ($160,000 principal) (incorporated by reference to Exhibit 10.4 to our Current Report on Form 8-K filed on December 28, 2020)
10.47	BD1 Exchange Note dated December 18, 2020 ($10,340,000 principal) (incorporated by reference to Exhibit 10.5 to our Current Report on Form 8-K filed on December 28, 2020)
10.48	Amendment to Series 1A Securities Purchase Agreement dated December 31, 2020 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed January 6, 2021
10.49	Tranche 2 Series 1A Securities Purchase Agreement dated January 4, 2021 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed January 6, 2021)
10.50	Industrial Lease for 12300 Grant Street, Thornton, Colorado dated September 21, 2020 (incorporated by reference to Exhibit 10.50 to our Annual Report on Form 10-K filed January 29, 2021)
10.51	Common Stock Purchase Agreement dated March 4, 2021 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed March 10, 2021)
10.52	Settlement Agreement dated March 9, 2021 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed March 10, 2021)
23.1	Consent of Haynie & Company*
31.1	Chief Executive Officer Certification pursuant to section 302 of the Sarbanes-Oxley Act of 2002*
31.2	Chief Financial Officer Certification pursuant to section 302 of the Sarbanes-Oxley Act of 2002*
32.1	Chief Executive Officer Certification pursuant to section 906 of the Sarbanes-Oxley Act of 2002*
32.2	Chief Financial Officer Certification pursuant to section 906 of the Sarbanes-Oxley Act of 2002*
101.INS	Inline XBRL Instance Document – the instance document does not appear in the Interactive Data File because XBRL tags are embedded within the Inline XBRL document.
101.SCH	Inline XBRL Taxonomy Extension Schema Document
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)

*	Filed herewith
CTR	Portions of this exhibit have been omitted pursuant to a request for confidential treatment.
†	Denotes management contract or compensatory plan or arrangement.

Item 16. Form 10-K Summary

None.

ASCENT SOLAR TECHNOLOGIES, INC.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized on the 12th day of May, 2021.

ASCENT SOLAR TECHNOLOGIES, INC.
By: /S/ VICTOR LEE
Lee Kong Hian (aka Victor Lee)
President and Chief Executive Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant in the capacities and on the dates indicated.

Signature	Capacities	Date
/S/ VICTOR LEE Lee Kong Hian (aka Victor Lee)	President & Chief Executive Officer and a Director (Principal Executive Officer)	May 13, 2021
/S/ MICHAEL J. GILBRETH Michael J. Gilbreth	Chief Financial Officer (Principal Financial and Accounting Officer)	May 13, 2021
/S/ AMIT KUMAR Amit Kumar, Ph.D.	Chairman of the Board of Directors	May 13, 2021
/S/ WILL CLARKE Will Clarke	Director	May 13, 2021
/S/ KIM J. HUNTLEY Kim J. Huntley	Director	May 13, 2021
/S/ DAVID PETERSON David Peterson	Director	May 13, 2021

Ascent Solar Technologies, Inc.

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and
Stockholders of Ascent Solar Technologies, Inc.

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Ascent Solar Technologies, Inc. (the Company) as of December 31, 2020 and 2019, and the related statements of operations, stockholders' deficit, and cash flows for each of the years in the two-year period ended December 31, 2020, and the related notes (collectively referred to as the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2020 and 2019, and the results of its operations and its cash flows for each of the years in the two-year period ended December 31, 2020, in conformity with accounting principles generally accepted in the United States of America.

Consideration of the Company's Ability to Continue as a Going Concern

The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. As more fully described in Note 4 to the consolidated financial statements, the Company has recurring losses, negative working capital, and negative cash flows from operations. These factors raise substantial doubt about the Company's ability to continue as a going concern. Management's plans in regard to these matters are also described in Note 4 to the consolidated financial statements. The consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty. If the Company is unable to obtain financing or increase sales, there could be a material adverse effect on the Company.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's consolidated financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits, we are required to obtain an understanding of internal control over financial reporting, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Complex Financing Transactions and Derivative Liabilities

Description of the Matter:

As discussed in Notes 10, 11, 12 and 13 to the consolidated financial statements, the Company entered into agreements to restructure debt through assignments and exchanges. The Company's financing transactions include convertible notes which are convertible into a variable number of shares Based on being convertible into a variable number of shares the conversion feature is bifurcated from the debt host and accounted for as a derivative liability. Accounting for troubled debt restructuring and derivative liabilities is complex and involves significant judgement and estimations.

How We Addressed the Matter in Our Audit:

We reviewed the underlying assignment and exchange agreements, evaluated management's troubled debt restructuring analysis, and confirmed outstanding balances with lenders. We also reviewed the Company's debt agreements to determine if there were unidentified derivatives. To assure the proper accounting for the derivative liabilities we reviewed the underlying convertible note agreements, evaluated management's selection of a valuation method, tested the inputs used in the Monte Carlo simulations by agreeing terms of the debt agreements and market information to third-party sites, and evaluated the credentials of management's specialist.

/s/ Haynie & Company

Haynie & Company
Salt Lake City, Utah
May 13, 2021

We have served as the Company's auditor since 2017.

ASCENT SOLAR TECHNOLOGIES, INC.
CONSOLIDATED BALANCE SHEETS

	December 31, 2020	December 31, 2019
ASSETS		
Current Assets:		
Cash and cash equivalents	$ 167,725	$ -
Trade receivables, net of allowance of $45,883 and $46,023, respectively	5,539	-
Inventories	534,431	533,892
Prepaid and other current assets	71,575	51,598
Total current assets	779,270	585,490
Property, Plant and Equipment:	24,867,176	32,911,969
Accumulated depreciation	(24,848,408)	(28,677,350)
	18,768	4,234,619
Other Assets:		
Operating lease right-of-use assets, net	5,633,663	-
Patents, net of accumulated amortization of $467,102 and $421,181, respectively	439,836	813,397
Other non-current assets	500,000	-
	6,573,499	813,397
Total Assets	7,371,537	5,633,506
LIABILITIES AND STOCKHOLDERS' DEFICIT		
Current Liabilities:		
Accounts payable	$ 736,986	$ 1,663,316
Related party payables	135,834	460,173
Accrued expenses	1,518,212	1,624,564
Accrued interest	438,063	2,107,401
Notes payable	250,000	1,506,530
Current portion of long-term debt	-	6,075,307
Current portion of operating lease liability	575,404	-
Secured promissory notes, net	-	6,335,655
Promissory notes, net	193,200	1,092,771
Convertible notes, net	-	2,129,016
Embedded derivative liability	5,303,984	7,717,150
Total current liabilities	9,151,683	30,711,883
Long-Term Liabilities:		
Non-current operating lease liabilities	5,179,229	-
Non-current secured promissory notes, net	5,405,637	-
Non-current convertible notes, net	7,813,048	-
Accrued warranty liability	14,143	28,404
Total liabilities	27,563,740	30,740,287
Stockholders' Deficit:		
Series A preferred stock, $.0001 par value; 750,000 shares authorized; 48,100 and 48,100 shares issued and outstanding, respectively ($752,765 and $703,863 Liquidation Preference, respectively)	5	5
Common stock, $0.0001 par value, 20,000,000,000 authorized; 18,102,583,473 and 4,759,161,650 shares issued and outstanding, respectively	1,810,258	475,917
Additional paid in capital	399,780,319	397,817,526
Accumulated Deficit	(421,782,785)	(423,400,229)
Total stockholders' deficit	(20,192,203)	(25,106,781)
Total Liabilities and Stockholders' Deficit	$ 7,371,537	$ 5,633,506

The accompanying notes are an integral part of these consolidated financial statements.

ASCENT SOLAR TECHNOLOGIES, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS

	For the Years Ended December 31,	
	2020	2019
Revenues		
Products	$ 66,613	$ 638,380
Total Revenues	66,613	638,380
Costs and Expenses		
Costs of revenue	174,588	490,755
Research, development and manufacturing operations	1,165,193	1,310,948
Selling, general and administrative	1,029,720	1,846,944
Depreciation and amortization	151,658	242,781
Total Costs and Expenses	2,521,159	3,891,428
Loss from Operations	(2,454,546)	(3,253,048)
Other Income/(Expense)		
Other income/(expense), net	3,002,170	842,500
Interest expense	(3,507,533)	(8,850,002)
Change in fair value of derivatives and loss on extinguishment of liabilities, net	4,577,353	6,392,289
Total Other Income/(Expense)	4,071,990	(1,615,213)
Net Income/(Loss)	$ 1,617,444	$ (4,868,261)
Net Income/(Loss) Per Share (Basic)	$ -	$ -
Net Income/(Loss) Per Share (Diluted)	$ -	$ -
Weighted Average Common Shares Outstanding (Basic)	6,855,179,243	1,537,643,750
Weighted Average Common Shares Outstanding (Diluted)	18,409,048,919	1,537,643,750

The accompanying notes are an integral part of these consolidated financial statements.

ASCENT SOLAR TECHNOLOGIES, INC.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' DEFICIT

	Series A Preferred Stock		Series A1 Preferred Stock		Common Stock		Additional Paid-In	Accumulated	Total Stockholders'
	Shares	Amount	Shares	Amount	Shares	Amount	Capital	Deficit	Equity (Deficit)
Balance, December 31, 2018	60,756	$ 6	-	$ -	63,537,885	$ 6,354	$395,889,712	$(418,531,968)	$(22,635,896)
Interest Expense paid with Common Stock	-	-	-	-	187,649,473	18,766	98,488	-	117,254
Stock issued for fees	-	-	-	-	399,336,751	39,934	39,931	-	79,865
Stock based compensation	-	-	-	-	-	-	20,750	-	20,750
Loss on Extinguishment of Liabilities	-	-	-	-	-	-	878,788	-	878,788
Conversion of BayBridge Note into Common Shares	-	-	-	-	959,692,046	95,969	185,931	-	281,900
Conversion of Bellridge Note into Common Shares	-	-	-	-	983,601,030	98,360	144,640	-	243,000
Conversion of Global Ichiban Note into Common Shares	-	-	-	-	9,595,327	960	114,040	-	115,000
Conversion of GS Capital Note into Common Shares	-	-	-	-	441,155,770	44,116	39,953	-	84,069
Conversion of Power Up Note into Common Shares	-	-	-	-	572,231,537	57,223	210,457	-	267,680
Conversion of St.George Note into Common Shares	-	-	-	-	1,142,361,830	114,236	194,834	-	309,070
Conversion of Series A Preferred Stock into Common Stock	(12,656)	(1)	-	-	1	-	1	-	-
Net Loss								(4,868,261)	(4,868,261)
Balance at December 31, 2019	48,100	5	-	-	4,759,161,650	475,918	397,817,525	(423,400,229)	(25,106,781)
Interest Expense paid with Common Stock	-	-	-	-	21,328,800	2,132.00	-	-	2,132
Proceeds from issuance of Series 1A Preferred Stock	-	-	1,300	-	-	-	1,300,000	-	1,300,000
Stock issued for fees	-	-	-	-	-	-	-	-	-
Loss on Extinguishment of Liabilities	-	-	-	-	-	-	150,000	-	150,000
Conversion of Bellridge Note into Common Shares	-	-	-	-	450,000,000	45,000.00	-	-	45,000
Conversion of Global Ichiban Note into Common Shares	-	-	-	-	872,093,023	87,208.00	512,794	-	600,002
Conversion of Series A1 Preferred Stock into Common Stock	-	-	-	-	12,000,000,000	1,200,000.00	-	-	1,200,000
Net Income								1,617,444	1,617,444
Balance at December 31, 2020	48,100	$ 5	1,300	$ -	18,102,583,473	$ 1,810,258	$399,780,319	$(421,782,785)	(20,192,203)

The accompanying notes are an integral part of these consolidated financial statements.

ASCENT SOLAR TECHNOLOGIES, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS

	For the Years Ended December 31,	
	2020	2019
Operating Activities:		
Net income/(loss)	$ 1,617,444	$ (4,868,261)
Adjustments to reconcile net loss to cash used in operating activities:		
Depreciation and amortization	151,658	242,780
Operating lease asset amortization	185,827	—
Stock based compensation	—	20,750
Realized (gain) on sale and foreclosure of assets	(2,987,170)	(842,500)
Amortization of deferred financing costs	4,525	24,639
Non-cash interest expense	820,035	2,579,674
Amortization of debt discount	1,381,685	4,735,907
Bad debt expense	(141)	359
Warranty reserve	(14,261)	(710)
Change in fair value of derivatives and (gain) on extinguishment of liabilities, net	(4,577,353)	(6,392,289)
Changes in operating assets and liabilities:		
Accounts receivable	(5,398)	164,801
Inventories	(539)	126,899
Prepaid expenses and other current assets	(524,502)	114,493
Accounts payable	(321,576)	(288,945)
Related party payable	(174,339)	189,433
Operating lease liabilities	(64,856)	—
Accrued interest	1,229,359	1,415,423

Accrued expenses	398,464	62,129
Net cash (used in) operating activities	(2,881,138)	(2,715,418)
Investing Activities:		
Purchase of property, plant and equipment	—	(6,393)
Proceeds on sale of assets	254,600	842,500
Patent activity costs	(156)	(8,616)
Net cash provided by (used in) investing activities	254,444	827,491
Financing Activities:		
Proceeds from debt issuance	443,200	1,887,268
Repayment of debt	(145,000)	(10,000)
Proceeds from issuance of stock	2,500,000	—
Payment of debt financing costs	—	(7,500)
Net cash provided by (used in) financing activities	2,798,200	1,869,768
Net change in cash and cash equivalents	171,506	(18,159)
Cash and cash equivalents at beginning of period	—	18,159
Cash and cash equivalents at end of period	$ 171,506	$ —
Supplemental Cash Flow Information:		
Cash paid for interest	$ —	$ 2,698
Non-Cash Transactions:		
Non-cash conversions of preferred stock and convertible notes to equity	$ 647,132	$ 1,417,976
Non-cash financing costs	$ —	$ 10,800
Operating lease assets obtained in exchange for operating	$ (5,819,489)	$ —

lease liabilities		
Non-cash mortgage derecognition	$ (6,443,897)	$ —
Non-cash property foreclosure	$ 6,443,897	$ —
Interest converted to principal	$ —	$ 171,152
Common shares issued for fees	$ —	$ 49,622
Initial embedded derivative liabilities	$ (447,903)	$ 4,507,381
Promissory notes exchanged for convertible notes	$ 650,000	$ 850,000

The accompanying notes are an integral part of these consolidated financial statements.

ASCENT SOLAR TECHNOLOGIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

NOTE 1. ORGANIZATION

Ascent Solar Technologies, Inc. (“Ascent”) was incorporated on October 18, 2005 from the separation by ITN Energy Systems, Inc. (“ITN”) of its Advanced Photovoltaic Division and all of that division’s key personnel and core technologies. ITN, a private company incorporated in 1994, is an incubator dedicated to the development of thin film, photovoltaic (“PV”), battery, fuel cell and nano technologies. Through its work on research and development contracts for private and governmental entities, ITN developed proprietary processing and manufacturing know how applicable to PV products generally, and to Copper-Indium-Gallium-diSelenide (“CIGS”) PV products in particular. ITN formed Ascent to commercialize its investment in CIGS PV technologies. In January 2006, in exchange for 102,800 shares of common stock of Ascent, ITN assigned to Ascent certain CIGS PV technologies and trade secrets and granted to Ascent a perpetual, exclusive, royalty free worldwide license to use, in connection with the manufacture, development, marketing and commercialization of CIGS PV to produce solar power, certain of ITN’s existing and future proprietary and control technologies that, although non-specific to CIGS PV, Ascent believes will be useful in its production of PV modules for its target markets. Upon receipt of the necessary government approvals and pursuant to novation in early 2007, ITN assigned government funded research and development contracts to Ascent and also transferred the key personnel working on the contracts to Ascent.

Currently, the Company is focusing on integrating its PV products into high value markets such as aerospace, satellites, near earth orbiting vehicles, and fixed wing unmanned aerial vehicles (UAV). The value proposition of Ascent’s proprietary solar technology not only aligns with the needs of customers in these industries, but also overcomes many of the obstacles other solar technologies face in these unique markets. Ascent has the capability to design and develop finished products for end users in these areas as well as collaborate with strategic partners to design and develop custom integrated solutions for products like fixed-wing UAVs. Ascent sees significant overlap of the needs of end users across some of these industries and can achieve economies of scale in sourcing, development, and production in commercializing products for these customers.

NOTE 2. BASIS OF PRESENTATION

The accompanying consolidated financial statements have been derived from the accounting records of Ascent Solar Technologies, Inc., Ascent Solar (Asia) Pte. Ltd., and Ascent Solar (Shenzhen) Co., Ltd. (collectively, "the Company") as of December 31, 2020 and December 31, 2019 , and the results of operations for the years ended December 31, 2020 and 2019. Ascent Solar (Shenzhen) Co., Ltd. is wholly owned by Ascent Solar (Asia) Pte. Ltd., which is wholly owned by Ascent Solar Technologies, Inc. All significant inter-company balances and transactions have been eliminated in the accompanying consolidated financial statements.

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

NOTE 3. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Cash Equivalents: The Company classifies all short-term investments in interest bearing bank accounts and highly liquid debt securities purchased with an original maturity of three months or less to be cash equivalents. The Company maintains cash balances which may exceed federally insured limits. The Company does not believe this results in significant credit risk.

Foreign Currencies: Bank account balances held in foreign currencies are translated to U.S. dollars utilizing the period end exchange rate. Gains or losses incurred in connection with the Company’s accounts held in foreign currency were not material for the years ended December 31, 2020 and 2019 and were recorded in “Other Income/(Expense)” in the Consolidated Statements of Operations.

Receivables and Allowance for Doubtful Accounts: Trade accounts receivable are recorded at the invoiced amount as the result of transactions with customers. The Company maintains allowances for doubtful accounts for estimated losses resulting from the inability of its customers to make required payments. The Company estimates the collectability of accounts receivable using analysis of historical bad debts, customer creditworthiness and current economic trends. Reserves are established on an account-by-account basis. Account balances are written off against the allowance in the period in which the Company determines that is it probable that the receivable will not be recovered. As of December 31, 2020, and December 31, 2019, the Company had an allowance for doubtful accounts of $45,883 and $46,023 respectively**.**

Inventories: All inventories are stated at the lower of cost or net realizable value, with cost determined using the weighted average method. Inventory balances are frequently evaluated to ensure they do not exceed net realizable value. The computation for net realizable value takes into account many factors, including expected demand, product life cycle and development plans, module efficiency, quality issues, obsolescence and others. Management's judgment is required to determine reserves for obsolete or excess inventory. As of December 31, 2020, and 2019, the Company had inventory reserve balances of $598,392 and $584,269 respectively. In response to management's estimate of current market conditions, the Company has reserved all of its finished goods inventory as of December 31, 2020. If actual demand and market conditions are less favorable than those estimated by management, additional inventory write downs may be required**.**

Property, Plant and Equipment: Property, plant and equipment are recorded at the original cost to the Company. Assets are being depreciated over estimated useful lives of three to forty years using the straight-line method, as presented in the table below, commencing when the asset is placed in service. Leasehold improvements are depreciated over the shorter of the remainder of the lease term or the life of the improvements. Upon retirement or disposal, the cost of the asset disposed of and the related accumulated depreciation are removed from the accounts and any gain or loss is reflected in income. Expenditures for repairs and maintenance are expensed as incurred.

	Useful Lives in Years
Buildings	40
Manufacturing machinery and equipment	5 - 10
Furniture, fixtures, computer hardware/ software	3 - 7
Leasehold improvements	life of lease

Patents: At such time as the Company is awarded patents, patent costs are amortized on a straight-line basis over the legal life on the patents, or over their estimated useful lives, whichever is shorter. As of December 31, 2020, and 2019, the Company had $439,836 and $813,397 of net patent costs, respectively. Of these amounts $103,740 and $149,660 represent costs net of amortization incurred for awarded patents, and the remaining $663,892 and $663,736 represents costs incurred for patent applications to be filed as of December 31, 2020 and 2019, respectively. During the years ended December 31, 2020 and 2019, the Company capitalized $156 and $8,616 in patent costs, respectively, as it worked to secure design rights and trademarks for newly developed products. Amortization expense was $45,920 and $57,649 for the years ended December 31, 2020 and 2019, respectively**.**

As of December 31, 2020, future amortization of patents is expected as follows:

2021	$ 37,429
2022	33,924
2023	25,154
2024	7,233
2025	-
	$ 103,740

Impairment of Long-lived Assets: The Company analyzes its long-lived assets (property, plant and equipment) and definitive-lived intangible assets (patents) for impairment, both individually and as a group, whenever events or changes in circumstances indicate the carrying amount of the assets may not be recoverable. Events that might cause impairment would include significant current period operating or cash flow losses associated with the use of a long-lived asset or group of assets combined with a history of such losses, significant changes in the manner of use of assets and significant negative industry or economic trends. An undiscounted cash flow analysis is calculated to determine if impairment exists. If impairment is determined to exist, any related loss is calculated using the difference between the fair value and the carrying value of the assets. During the years ended December 31, 2020 and 2019, the Company did not incur impairments of its manufacturing facilities and equipment**.**

Related Party Payables: The Company accounts for fees due to board members in the related party payables account on the balance sheet.

Interest Capitalization: Historically the Company has capitalized interest cost as part of the cost of acquiring or constructing certain assets during the period of time required to get the asset ready for its intended use. The Company capitalized interest to the extent that expenditures to acquire or construct an asset have occurred and interest cost has been incurred.

Convertible Notes: The Company issues, from time to time, convertible notes. Refer to Notes 10 and 12 for further information.

Convertible Preferred Stock: The Company evaluates its preferred stock instruments under FASB ASC 480, *"Distinguishing Liabilities from Equity"* to determine the classification, and thereby the accounting treatment, of the instruments. Refer to Notes 13 and 19 for further discussion on the classification of each instrument.

Derivatives: The Company evaluates its financial instruments under FASB ASC 815, *"Derivatives and Hedging"* to determine whether the instruments contain an embedded derivative. When an embedded derivative is present, the instrument is evaluated for a fair value adjustment upon issuance and at the end of every reporting period. Any adjustments to fair value are treated as gains and losses in fair values of derivatives and are recorded in the Consolidated Statements of Operations.

The following table is a summary of the derivative liability activity for the years ended December 31, 2020 and 2019:

Derivative Liability Balance as of December 31, 2018	**$ 10,114,452**
Additional derivative liability on new notes	4,507,380
Change in fair value of derivative liability	(6,196,026)
Liability extinguished	(708,656)
Derivative Liability Balance as of December 31, 2019	**7,717,150**
Additional derivative liability on new notes	447,903
Change in fair value of derivative liability	(2,861,069)
Derivative Liability Balance as of December 31, 2020	**$ 5,303,984**

Refer to Notes 10, 12, and 13 for further discussion on the embedded derivatives of each instrument.

Product Warranties: The Company provides a limited warranty to the original purchaser of products against defective materials and workmanship. The Company also guarantees that standalone modules and PV integrated consumer electronics will achieve and maintain the stated conversion efficiency rating for certain products. Warranty accruals are recorded at the time of sale and are estimated based upon product warranty terms, historical experience and analysis of peer company product returns. The Company assesses the adequacy of its liabilities and makes adjustments as necessary based on known or anticipated warranty claims, or as new information becomes available.

Warrant Liability: Warrants to purchase the Company's common stock with nonstandard anti-dilution provisions, regardless of the probability or likelihood that may conditionally obligate the issuer to ultimately transfer assets, are classified as liabilities and are recorded at their estimated fair value at each reporting period. Any change in fair value of these warrants is recorded at each reporting period in Other income/(expense) on the Company's statement of operations.

Revenue Recognition:

Product revenue. We recognize revenue for module and other equipment sales at a point in time following the transfer of control of such products to the customer, which typically occurs upon shipment or delivery depending on the terms of the underlying contracts. For module and other equipment sales contracts that contain multiple performance obligations, we allocate the transaction price to each performance obligation identified in the contract based on relative standalone selling prices, or estimates of such prices, and recognize the related revenue as control of each individual product is transferred to the customer, in satisfaction of the corresponding performance obligations.

During the years ended December 31, 2020 and 2019, the company recognized product revenue of $66,613 and $638,380, respectively.

Government contracts revenue. Revenue from government research and development contracts is generated under terms that are cost plus fee or firm fixed price. We generally recognize this revenue over time using cost-based input methods, which recognize revenue and gross profit as work is performed based on the relationship between actual costs incurred compared to the total estimated costs of the contract. In applying cost-based input methods of revenue recognition, we use the actual costs incurred relative to the total estimated costs to determine our progress towards contract completion and to calculate the corresponding amount of revenue to recognize.

Cost based input methods of revenue recognition are considered a faithful depiction of our efforts to satisfy long-term government research and development contracts and therefore reflect the performance obligations under such contracts. Costs incurred that do not contribute to satisfying our performance obligations are excluded from our input methods of revenue recognition as the amounts are not reflective of our transferring control under the contract. Costs incurred towards contract completion may include direct costs plus allowable indirect costs and an allocable portion of the fixed fee. If actual and estimated costs to complete a contract indicate a loss, provision is made currently for the loss anticipated on the contract.

No government contract revenue was recognized for the years ended December 31, 2020 and 2019.

Shipping and Handling Costs: The Company classifies shipping and handling costs for products shipped to customers as a component of "Cost of revenues" on the Company's Consolidated Statements of Operations. Customer payments of shipping and handling costs are recorded as a component of Revenues.

Research, Development and Manufacturing Operations Costs: Research, development and manufacturing operations expenses were $1,165,193 and $1,310,948 for the years ended December 31, 2020 and 2019, respectively. Research, development and manufacturing operations expenses include: 1) technology development costs, which include expenses incurred in researching new technology, improving existing technology and performing federal government research and development contracts, 2) product development costs, which include expenses incurred in developing new products and lowering product design costs, and 3) pre-production and production costs, which include engineering efforts to improve production processes, material yields and equipment utilization, and manufacturing efforts to produce saleable product. Research, development and manufacturing operations costs are expensed as incurred, with the exception of costs related to inventoried raw materials, work-in-process and finished goods, which are expensed as cost of revenue as products are sold**.**

Marketing and Advertising Costs: The Company advertises in print, television, online and through social media. The Company will also authorize customers to run advertising campaigns on its behalf through various media outlets. Marketing and advertising costs are expensed as incurred. Marketing and advertising expenses were $3,559 and $2,465 for the years ended December 31, 2020 and 2019, respectively**.**

Share-Based Compensation: The Company measures and recognizes compensation expense for all share-based payment awards made to employees, officers, directors, and consultants based on estimated fair values. The value of the portion of the award that is ultimately expected to vest is recognized as expense over the requisite service period in the Company's Statements of Operations. Share-based compensation is based on awards ultimately expected to vest and is reduced for estimated forfeitures. Forfeitures are estimated at the time of grant and revised, as necessary, in subsequent periods if actual forfeitures differ from those estimates. For purposes of determining estimated fair value of share-based payment awards on the date of grant the Company uses the Black-Scholes option-pricing model ("Black-Scholes Model") for option awards. The Black-Scholes Model requires the input of highly subjective assumptions. Because the Company's employee stock options may have characteristics significantly different from those of traded options, and because changes in the subjective input assumptions can materially affect the fair value estimate, in management's opinion, the existing models may not provide a reliable single measure of the fair value of the Company's employee stock options. Management will continue to assess the assumptions and methodologies used to calculate estimated fair value of share-based compensation. Circumstances may change and additional data may become available over time, which result in changes to these assumptions and methodologies, which could materially impact the Company's fair value determination. The Company estimates the fair value of its restricted stock awards as its stock price on the grant date.

The accounting guidance for share-based compensation may be subject to further interpretation and refinement over time. There are significant differences among option valuation models, and this may result in a lack of comparability with other companies that use different models, methods and assumptions. If factors change and the Company employs different assumptions in the accounting for share-based compensation in future periods, or if the Company decides to use a different valuation model, the compensation expense the Company records in the future may differ significantly from the amount recorded in the current period and could materially affect its loss from operations, net loss and net loss per share.

Income Taxes: Deferred income taxes are provided using the liability method whereby deferred tax assets are recognized for deductible temporary differences and operating loss and tax credit carry forwards and deferred tax liabilities are recognized for taxable temporary differences. Temporary differences are the differences between the reported amounts of assets and liabilities and their tax bases. Deferred tax assets are reduced by a valuation allowance when, in the opinion of management, it is more likely than not that some portion or all of the deferred tax assets will not be realized. Deferred tax assets and liabilities are adjusted for the effects of the changes in tax laws and rates as of the date of enactment. Interest and penalties, if applicable, would be recorded in operations.

The Company has analyzed filing positions in all of the federal and state jurisdictions where it is required to file income tax returns, as well as all open tax years (2017-2020) in these jurisdictions. The Company believes its income tax filing positions and deductions will be sustained on audit and does not anticipate any adjustments that will result in a material adverse effect on the Company's financial condition, results of operations, or cash flows. Therefore, no reserves for uncertain income tax positions have been recorded.

Earnings per Share: Earnings per share ("EPS") are the amount of earnings attributable to each share of common stock. Basic EPS has been computed by dividing income available to common stockholders by the weighted-average number of common shares outstanding during the period. Income available to common stockholders has been computed by deducting both the dividends declared in the period on preferred stock (whether or not paid) and the dividends accumulated for the period on cumulative preferred stock (whether or not earned) from net income Diluted earnings per share has been computed using the weighted average number of common shares and common share equivalents outstanding (which consist of options and convertible debt to the extent they are dilutive).

There were approximately 19.5 billion dilutive common shares for the year ended December 31, 2020, and approximately 44.8 billion shares were omitted for the year ended December 31, 2019 because they were anti-dilutive.

Fair Value Estimates: Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. Valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. The Company uses fair value hierarchy based on three levels of inputs, of which, the first two are considered observable and the last unobservable, to measure fair value:

- Level 1 - Quoted prices in active markets for identical assets or liabilities.
- Level 2 - Inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.
- Level 3 - Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

Certain long-lived assets and current liabilities have been measured at fair value on a recurring and non-recurring basis. See Note 6. Property, Plant and Equipment, Note 10. Secured Promissory Notes, and Note 12. Convertible Notes. The carrying amount of our long-term debt outstanding approximates fair value because our current borrowing rate does not materially differ from market rates for similar bank borrowings. The carrying value for cash and cash equivalents, restricted cash, accounts receivable, accounts payable, accrued expenses and other assets and liabilities approximate their fair values due to their short maturities.

Use of Estimates: The preparation of financial statements in conformity with U.S. generally accepted accounting principles ("GAAP") requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Recently Issued Accounting Standards

In August 2020, the FASB issued ASU No. 2020-06, *Debt - Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging Contracts in Entity s Own Equity (Subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity s Own Equity*. ASU 2020-06 will simplify the accounting for convertible instruments by reducing the number of accounting models for convertible debt instruments and convertible preferred stock. Limiting the accounting models results in fewer embedded conversion features being separately recognized from the host contract as compared with current GAAP. Convertible instruments that continue to be subject to separation models are (1) those with embedded conversion features that are not clearly and closely related to the host contract, that meet the definition of a derivative, and that do not qualify for a scope exception from derivative accounting and (2) convertible debt instruments issued with substantial premiums for which the premiums are recorded as paid-in capital. ASU 2020-06 also amends the guidance for the derivatives scope exception for contracts in an entity's own equity to reduce form-over-substance-based accounting conclusions. ASU 2020-06 will be effective for public companies for fiscal years beginning after December 15, 2023, including interim periods within those fiscal years. Early adoption is permitted, but no earlier than fiscal years beginning after December 15, 2020, including interim periods within those fiscal years. Management has not yet evaluated the impact that the adoption of ASU 2020-06 will have on the Company's consolidated financial statement presentation or disclosures.

Other new pronouncements issued but not effective as of December 31, 2020 are not expected to have a material impact on the Company's consolidated financial statements.

NOTE 4. LIQUIDITY, CONTINUED OPERATIONS, AND GOING CONCERN

During the years ended December 31, 2020 and 2019, the Company entered into multiple financing agreements to fund operations. Further discussion of these transactions can be found in Notes 9, 10, 11, 12, 21.

The Company has continued limited PV production at its manufacturing facility. The Company does not expect that sales revenue and cash flows will be sufficient to support operations and cash requirements until it has fully implemented its product strategy. During the year ended December 31, 2020 the Company used $2,881,138 in cash for operations. As of December 31, 2020, the Company had $13,494,160 in net debt, and $872,820 in payables. Also as of December 31, 2020, the Company owed $438,063 in interest.

Additional projected product revenues are not anticipated to result in a positive cash flow position for the year 2021 overall and, as of December 31, 2020, the Company has a working capital deficit of $8,372,413 million. As such, cash liquidity sufficient for the year ending December 31, 2021 will require additional financing.

The Company continues to accelerate sales and marketing efforts related to its consumer and military solar products and specialty PV application strategies through expansion of its sales and distribution channels. The Company has begun activities related to securing additional financing through strategic or financial investors, but there is no assurance the Company will be able to raise additional capital on acceptable terms or at all. If the Company's revenues do not increase rapidly, and/or additional financing is not obtained, the Company will be required to significantly curtail operations to reduce costs and/or sell assets. Such actions would likely have an adverse impact on the Company's future operations.

As a result of the Company’s recurring losses from operations, and the need for additional financing to fund its operating and capital requirements, there is uncertainty regarding the Company’s ability to maintain liquidity sufficient to operate its business effectively, which raises substantial doubt as to the Company’s ability to continue as a going concern. The Company has scaled down its operations, due to cash flow issues, and does not expect to ramp up until significant financing is obtained.

Management cannot provide any assurances that the Company will be successful in accomplishing any of its plans. These consolidated financial statements do not include any adjustments that might be necessary should the Company be unable to continue as a going concern.

NOTE 5. TRADE RECEIVABLES

Trade receivables, net consist of amounts generated from product sales and government contracts. Accounts receivable totaled $5,539 and $0 as of December 31, 2020 and 2019, respectively.

Provisional Indirect Cost Rates - The Company bills the government under cost-based research and development contracts at provisional billing rates which permit the recovery of indirect costs. These rates are subject to audit on an annual basis by the government agencies’ cognizant audit agency. The cost audit may result in the negotiation and determination of the final indirect cost rates. In the opinion of management, re-determination of any cost-based contracts will not have a material effect on the Company’s financial position or results of operations.

NOTE 6. PROPERTY, PLANT AND EQUIPMENT

The following table summarizes property, plant and equipment as of December 31, 2020 and December 31, 2019:

	As of December 31,	
	2020	**2019**
Building	$ -	$ 5,828,960
Furniture, fixtures, computer hardware and computer software	489,421	489,421
Manufacturing machinery and equipment	24,377,755	26,593,588
Depreciable property, plant and equipment	24,867,176	32,911,969
Less: Accumulated depreciation and amortization	(24,848,408)	(28,677,350)
Net property, plant and equipment	$ 18,768	$ 4,234,619

The Company analyzes its long-lived assets for impairment, both individually and as a group, whenever events or changes in circumstances indicate that the carrying amount of the assets may not be recoverable.

Depreciation expense for the years ended December 31, 2020 and 2019 was $105,738 and $185,132, respectively. Depreciation expense is recorded under "Depreciation and amortization expense" in the Consolidated Statements of Operations.

On July 29, 2020 the Company's owned facility at 12300 Grant Street, Thornton, CO 80241 (the "Building") was foreclosed by the Building's first lien holder ("Mortgage Holder") and sold at public auction. The successful bidder for the Building was the Mortgage Holder, at the price of $7.193 million. As a result, the Company's obligations to Mortgage Holder and all of the Company's outstanding real property taxes on the Building were considered fully repaid.

On September 21, 2020, the Company entered into a lease agreement with 12300 Grant LLC ("Landlord"), an affiliated company of the Mortgage Holder, for approximately 100,000 rentable square feet of the Building (the "Lease"). The lease is classified as an operating lease and accounted for accordingly. The Lease term is for 88 months commencing on September 21, 2020 at a rent of $50,000 per month including taxes, insurance and common area maintenance until December 31, 2020. Beginning January 1, 2021, the rent shall adjust to $80,000 per month on a triple net basis and shall increase at an annual rate of 3% per annum until December 31, 2027.

At December 31, 2020, the Company recorded an operating lease asset and liability totaling $5,633,663 and $5,754,633, respectively. During the year ended December 31, 2020, the Company recorded operating lease costs included in rent expense totaling $287,103.

Future maturities of the operating lease liability are as follows:

2021	$	960,000
2022		988,800
2023		1,018,464
2024		1,049,018
2025		1,080,488
Thereafter		2,259,192
Total lease payments	**$**	**7,355,962**
Less amounts representing interest		(1,601,329)
Present value of lease liability	**$**	**5,754,633**

The remaining lease term and discount rate of the operating lease is 84.5 months and 7.0% respectively.

NOTE 7. INVENTORIES

Inventories consisted of the following at December 31, 2020 and December 31, 2019:

	As of December 31,	
	2020	**2019**
Raw materials	$ 525,626	$ 503,832
Work in process	—	30,060
Finished goods	8,805	-
Total	$ 534,431	$ 533,892

NOTE 8. NOTES PAYABLE

Between February, 2017 and June 2018, the Company entered into two agreements with a vendor ("Vendor 1") to convert the balance of their account into four notes payable in the aggregate amount of $1,073,825. The notes bear interest of 6% per annum and matured on February 24, 2018 and July 31, 2018, respectively, but remained unpaid as of December 31, 2019. At December 31, 2019, the aggregate principal and accrued interest balances were $1,073,825 and $162,205, respectively. On September 11, 2020, the Company entered into a settlement agreement (the "Settlement Agreement A") with Vendor 1 and paid $120,000 on September 23, 2020 as the full and final settlement of all amounts owed between the parties. Following payment, a satisfaction of an existing judgment in favor of such law firm was filed in Adams County, Colorado. The Company booked a gain of approximately $1.1 million relating to Settlement Agreement A.

On June 30, 2017, the Company entered into an agreement with another vendor (“Vendor 2”) to convert the balance of their account into a note payable in the amount of $250,000. The note bears interest of 5% per annum and matured on February 28, 2018. As of December 31, 2020, the Company had not made any payments on this note, the accrued interest was $43,836, and the note is due upon demand. To the best of our knowledge, Vendor 2 had not made any attempts to recover any amount owing to them since 2019.

On September 30, 2017, the Company entered into a settlement agreement with a customer to convert the credit balance of their account into a note payable in the amount of $215,234. The note bears interest of 5% per annum and matured on December 31, 2019. The Company made principal and interest payments of $32,529 and $897, respectively. At December 31, 2019, the remaining principal and accrued interest balances were $182,705 and $21,933, respectively. On September 11, 2020, the Company entered into a settlement agreement (the “Settlement Agreement B”) with the customer and paid $20,000 on September 18, 2020 as the full and final settlement of all amounts owed between the parties. The Company booked a gain of approximately $185,000 relating to Settlement Agreement B.

NOTE 9. DEBT

On August 2, 2019, Colorado Housing and Finance Authority (“CHFA”) entered into an agreement to assign the mortgage note to Iliad Research and Trading, L.P., a Utah limited liability partnership ("IRT"). This agreement closed on September 11, 2019, and IRT paid a total of $5,885,148 to CHFA to assume the note. The payment amount consisted of $5,405,666 of principal and $479,482 of interest and fees. Interest was accrued on the note at the default interest rate of 10.5%. At December 31, 2019, the remaining principal and accrued interest balances were $5,885,148 and $190,158, respectively.

On July 29, 2020, the Company’s owned facility at 12300 Grant Street, Thornton, CO 80241 (the “Building”) was foreclosed by IRT and sold at public auction. The successful bidder for the Building was IRT, at the price of $7.193 million. As a result, the Company’s obligations to IRT and all of the Company’s outstanding real property taxes on the Building were considered fully repaid. The Company booked a gain of approximately $3 million on sale of the property.

NOTE 10. SECURED PROMISSORY NOTE

The following table provides a summary of the activity of the Company's secured notes:

	Global Ichiban	St. George	BD 1	Total
Secured Notes Principal Balance at December 31, 2018	$ 4,956,745	$ 1,315,000	$ —	$ 6,271,745
New notes	—	845,000	—	845,000
Note conversions	(115,000)	—	—	(115,000)
Interest converted to principal	171,152	—	—	171,152
Secured Notes Principal Balance at December 31, 2019	5,012,897	2,160,000	—	7,172,897
Less: remaining discount	(765,576)	(71,666)	—	(837,242)
Secured Notes, net of discount, at December 31, 2019	**4,247,321**	**2,088,334**	**—**	**6,335,655**
New notes	6,400,000	—	—	6,400,000
Note conversions	(600,000)	—	—	(600,000)
Note Assignments	—	(2,160,000)	2,160,000	(2,160,000)
Notes Exchanged	(5,012,897)	—	(2,160,000)	(5,012,897)
Secured Notes Principal Balance at December 31, 2020	5,800,000	—	—	5,800,000
Less: remaining discount	(394,363)	—	—	(394,363)
Secured Notes, net of discount, at December 31, 2020	**$ 5,405,637**	**$ —**	**$ —**	**$ 5,405,637**

Global Ichiban Secured Promissory Notes

Prior to 2019, the Company had issued secured notes to Global Ichiban Limited (“Global”) that had aggregate remaining principal and accrued interest balances of $4,956,745 and $1,223,611, respectively, as of January 1, 2019.

All principal and accrued interest on the notes was redeemable at any time, in whole or in part, at the option of Global. The redemption amount may be paid in cash or converted into shares of common stock at a variable conversion price equal to the lowest of (i) 85% of the average VWAP for the shares over the prior 5 trading days, (ii) the closing bid price for the shares on the prior trading day, or (iii) $2.00 per share, at the option of the Company.

The notes may not be converted, and shares of the common stock may not be issued pursuant to the notes, if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 9.99% of the outstanding shares of common stock.

The following table summarizes the conversion activity of this note:

Conversion Period	Principal Converted	Interest Converted	Common Shares Issued
Q1 2019	115,000	-	9,595,327
	$ 115,000	$ -	9,595,327

Since conversions began in the first quarter of 2018, the interest associated with conversions has been added back into the principal of the notes. The following table summarizes the activity of adding the interest to principal:

Period	Interest converted to Principal
Q1 2019	171,152
	$ 171,152

All the notes issued in accordance with the note purchase and exchange agreement dated November 30, 2017 were secured by a security interest on substantially all of the Company's assets, bear interest at a rate of 12% per annum and contain standard and customary events of default.

On September 9, 2020, the Company entered into a securities exchange agreement ("GI Exchange Agreement") with Global. Pursuant to the terms of the GI Exchange Agreement, Global agreed to surrender and exchange all of its existing outstanding promissory notes with an aggregate principal balance of $6,313,387 (including accrued interest). In exchange, the Company issued to Global a secured convertible promissory note with a principal amount of $6,400,000 ("GI Exchange Note"). The GI Exchange Note will mature on September 30, 2022. Principal on the GI Exchange Note, if not converted, will be payable in a lump sum on September 30, 2022. The GI Exchange Note will not bear any accrued interest but bears a default interest rate of 18% in the event of a default under the GI Exchange Note. The GI Exchange Note is secured by a lien on substantially all of the Company's assets pursuant to the Security Agreement dated November 30, 2017 (the "Security Agreement") entered into between the Company and Global. The Company has accounted for the GI Exchange Agreement as a troubled debt restructuring. The future undiscounted cash flow of the new secured convertible promissory note totaling $6,400,000 is more than the carrying value of the original outstanding promissory notes totaling $6,313,387, therefore no gain was recorded and a new effective interest rate has been established based on the carrying value of the original promissory notes and revised cash flow. The difference of $86,613 was recorded as an original issue debt discount and will be charged to interest over the term of the note. On December 9, 2020, Global converted $600,000 into 872,093,023 common shares. At December 31, 2020 the remaining principal balance was $5,800,000.

The conversion option associated with the note was deemed to include an embedded derivative that required bifurcation and separate accounting. Refer to Note 13. Derivative Liabilities for further details.

Subsequent to the period of this report, the amounts owed to Global were fully settled. Refer to the *Global Ichiban Settlement Agreement* section of Note 22. Subsequent Events for further details.

St. George Secured Convertible Notes

Prior to 2019, the Company had issued secured notes to St. George Investments LLC ("St. George") that had aggregate remaining principal and accrued interest balances of $1,315,000 and $252,751, respectively, as of January 1, 2019.

During 2019, the Company issued $845,000 in notes to St. George with net proceeds of $700,000. The Company recorded aggregate original issue discounts of $140,000 and debt financing costs of $5,000, which will be recognized as interest expense, ratably, over the life of the note.

Beginning six months from the date of issuance, St. George shall have the option to redeem all or a portion of the amounts outstanding under the Company Note. At St. George's option, redemption amounts are payable by the Company in cash or in the form of shares of the common stock. Conversions into common stock shall be calculated using a variable conversion price equal to 60% of the average of the two lowest closing bid prices for the shares over the prior 10-day trading period immediately preceding the conversion.

Shares of common stock may not be issued pursuant to these notes if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 9.99% of the outstanding shares of common stock.

The conversion option associated with the notes was deemed to include an embedded derivative that required bifurcation and separate accounting. Refer to Note 13. Derivative Liabilities for further details.

On September 9, 2020, all debts with St. George were assigned to BD 1 as part of the Company's recapitalization and restructuring effort which began in June 2020. The Company subsequently entered into an Exchange Agreement with BD 1 on December 18, 2020. Refer to the *BD 1 Convertible Notes* in Note 12. Convertible Notes for further discussion.

NOTE 11. PROMISSORY NOTES

The following table provides a summary of the activity of the Company's non-convertible, unsecured, promissory notes:

	Investor 1	**Investor 2**	**BD 1**	**SBA**	**Total**
Promissory Notes Principal Balance at December 31, 2018	**$ 494,437**	**$ 850,000**	**$ —**	**$ —**	**$ 1,344,437**
New principal	—	615,000	—	—	615,000
Notes exchanged	—	(850,000)	—	—	(850,000)
Promissory Notes Principal Balance at December 31, 2019	494,437	615,000	—	—	1,109,437
Less: remaining discount	—	(16,666)	—	—	(16,666)
Promissory Notes, net of discount, at December 31, 2019	**494,437**	**598,334**	**—**	**—**	**1,092,771**
New principal	—	35,000	—	193,200	228,200
Notes assigned	(494,437)	(650,000)	1,144,437	—	—
Notes exchanged	—	—	(1,144,437)	—	(1,144,437)
Promissory Notes Principal Balance at December 31, 2020	—	—	—	193,200	193,200
Less: remaining discount	—	—	—	—	—
Promissory Notes, net of discount, at December 31, 2020	**$ —**	**$ —**	**$ —**	**$193,200**	**$ 193,200**

Offering of Unsecured, Non-Convertible Notes to Investor 1

Prior to 2019, the Company had issued a note to a private investor ("Investor 1"), that had remaining principal and accrued interest balances of $494,437 and $136,927, respectively, as of January 1, 2019. The note bears an interest rate of 12%, and principal and interest on this note were payable at maturity. This note was not convertible into equity shares of the Company and was unsecured.

On September 11, 2020 the debt with Investor 1 was assigned to BD 1 as part of the Company's recapitalization and restructuring effort which began in June 2020. The Company subsequently entered into an Exchange Agreement with BD 1 on December 18, 2020. Refer to the *BD 1 Convertible Notes* in Note 12. Convertible Notes for further discussion.

Offering of Unsecured, Non-Convertible Notes to Investor 2

Prior to 2019, the Company had issued notes to another private investor ("Investor 2"), that had aggregate remaining principal and accrued interest balances of $850,000 and $61,246, respectively, as of January 1, 2019.

During 2019, the Company issued non-convertible, unsecured promissory notes with Investor 2 with an aggregate principal amount of $500,000. The notes were issued with an aggregate original issue discount of $120,000, which will be recorded as interest expense ratably over the term of the note, resulting in proceeds to the company of $380,000. The notes bear interest at a rate of 12% and matured between September 11, 2019 and March 9, 2020. All principal and interest was payable upon maturity.

During 2020, the Company initiated a non-convertible, unsecured promissory note with Investor 2 for an aggregate principal amount of $150,000. The promissory note was issued with an original issue discount of $35,000, which will be recorded as interest expense ratably over the term of the note, resulting in proceeds to the company of $115,000, which was received in several tranches between September 2019 and November 2019. This note bears interest at 12% per annum and matures on May 1, 2021. All principal and interest is payable upon maturity.

On September 11, 2020, the entire debt with Investor 2 was assigned to BD 1 as part of the Company's recapitalization and restructuring effort which began in June 2020. The Company subsequently entered into an Exchange Agreement with BD 1 on December 18, 2020. Refer to the *BD 1 Convertible Notes* in Note 12. Convertible Notes for further discussion.

SBA PPP

On April 17, 2020, the Company obtained a PPP Loan from Vectra Bank Colorado ("Vectra") in the aggregate amount of $193,200, which was established under the CARES Act, as administered by the Small Business Association ("SBA"). Under the terms of the CARES Act and the PPP, all or a portion of the principal amount of the PPP Loan is subject to forgiveness so long as, over the 24-week period following the Company's receipt of the proceeds of the PPP Loan, the Company uses those proceeds for payroll costs, rent, utility costs or the maintenance of employee and compensation levels. The PPP Loan is unsecured, guaranteed by the SBA, and has a two-year term, maturing on April 17, 2022. Interest accrues on the loan beginning with the initial disbursement; however, payments of principal and interest are deferred until Vectra's determination of the amount of forgiveness applied for by the Company is approved by the SBA. If the Company does not apply for forgiveness within 10 months after the last day of the covered period (defined, at the Company's election as 24 weeks), such payments will be due that month. See Note 18. Paycheck Protection Program Loan for further information on the SBA PPP note

NOTE 12. CONVERTIBLE NOTES

The following table provides a summary of the activity of the Company's unsecured, convertible, promissory notes:

	Principal Balance 12/31/2018	**New Notes**	**Notes assigned or exchanged**	**Notes converted**	**Principal Balance 12/31/2019**	**Less: Discount Balance**	**Net Principal Balance 12/31/2019**
October 2016 Notes	**$ 330,000**	$ —	$ —	$ —	**$ 330,000**	$ —	**$ 330,000**
St. George Notes	**1,099,233**	(172,500)	—	(309,070)	**617,663**	—	**617,663**
BayBridge Notes	**62,500**	—	1,160,000	(281,900)	**940,600**	(408,333)	**532,267**
Bellridge Notes	**455,000**	510,000	(226,000)	(243,000)	**496,000**	(382,500)	**113,500**
Power Up Notes	**225,000**	149,500	—	(267,680)	**106,820**	(26,566)	**80,254**
EMA Note	**75,000**	—	(75,000)	—	**—**	—	**—**
Widjaja Note	**—**	330,000	—	—	**330,000**	(1)	**329,999**
GS Capital Notes	**—**	178,568	75,000	(84,068)	**169,500**	(44,167)	**125,333**
	$ 2,246,733	$ 995,568	$ 934,000	$(1,185,718)	**$ 2,990,583**	$ (861,567)	**$ 2,129,016**

	Principal Balance 12/31/2019	New Notes	Notes assigned or exchanged	Notes converted	Principal Balance 12/31/2020	Less: Discount Balance	Net Principal Balance 12/31/2020
October 2016 Notes	**$ 330,000**	$ —	$ (330,000)	$ —	**$ —**	$ —	**$ —**
St. George Notes	**617,663**	—	(617,663)	—	**—**	—	**—**
BayBridge Notes	**940,600**	—	(940,600)	—	**—**	—	**—**
Bellridge Notes	**496,000**	—	(451,000)	(45,000)	**—**	—	**—**
Power Up Notes	**106,820**	—	(106,820)	—	**—**	—	**—**
Widjaja Note	**330,000**	—	(330,000)	—	**—**	—	**—**
GS Capital Notes	**169,500**	—	(169,500)	—	**—**	—	**—**
Penumbra Note (related party)	**—**	250,000	(250,000)	—	**—**	—	**—**
BD 1 Notes (related party)	**—**	10,500,000	—	—	**10,500,000**	(2,936,952)	**7,563,048**
Crowdex Note (related party)	**—**	—	250,000	—	**250,000**	—	**250,000**
	$ 2,990,583	$ 10,750,000	$(2,945,583)	$ (45,000)	**$10,750,000**	$(2,936,952)	**$ 7,813,048**

October 2016 Convertible Notes

Prior to 2019, the Company had issued convertible notes to a private investor that had remaining principal and accrued interest balances of $330,000 and $136,927, respectively, as of January 1, 2019.

The convertible notes matured on December 31, 2017 and bear an interest rate of 6% per annum, subject to increase to 24% per annum upon the occurrence and continuance of an event of default. Principal and accrued interest on the convertible notes is payable upon demand. The default interest rate has not been designated by the investor.

All principal and accrued interest on the convertible notes is convertible at any time, in whole or in part, at the option of the investor, into shares of common stock at a variable conversion price equal to 80% of the lowest closing bid price of the Company's common stock for the fifteen consecutive trading day period prior to the conversion date. After the six-month anniversary of the issuance of any convertible note, the conversion price for such note shall thereafter be equal to 50% of the lowest closing bid price of the Company's common stock for the fifteen consecutive trading day period prior to the conversion date. The convertible notes contain standard and customary events of default.

The conversion option associated with the notes was deemed to include an embedded derivative that required bifurcation and separate accounting. Refer to Note 13. Derivative Liabilities for further details.

On September 11, 2020, the October 2016 Convertible Notes were assigned to BD 1 as part of the Company's recapitalization and restructuring effort which began in June 2020. The Company subsequently entered into an Exchange Agreement with BD 1 on December 18, 2020. Refer to the *BD 1 Convertible Notes* in Note 12. Convertible Notes for further discussion.

St. George Convertible Note

Prior to 2019, the Company sold and issued a $1,700,000 convertible note to St. George, which had a principal balance of $1,099,233 as of January 1, 2019.

This note matured on March 11, 2019. The note does not bear interest in the absence of an event of default. The note is due upon demand and a default interest rate has not been designated by St. George.

During 2019, $309,070 was converted into 1.1 billion shares of the Company's common stock.

The following table summarizes the conversion activity of this note:

Conversion Period	Principal Converted	Interest Converted	Common Shares Issued
Q1 2019	106,750	-	58,503,244
Q2 2019	59,320	-	86,636,364
Q3 2019	89,000	-	457,222,222
Q4 2019	54,000	-	540,000,000
	$ 309,070	$ -	1,142,361,830

The conversion option associated with the note was deemed to include an embedded derivative that required bifurcation and separate accounting. Refer to Note 13. Derivative Liabilities for further details.

On September 9, 2020, the St. George Convertible Note was assigned to BD 1 as part of the Company's recapitalization and restructuring effort which began in June 2020. The Company subsequently entered into an Exchange Agreement with BD 1 on December 18, 2020. Refer to the *BD 1 Convertible Notes* in Note 12. Convertible Notes for further discussion.

Baybridge Convertible Note

Between September 7, 2018 and August 22, 2019, the Company, entered into several securities exchange agreements with BayBridge Capital Fund LP ("BayBridge).

During 2019, the Company entered into several securities exchange agreements with BayBridge Capital Fund LP ("BayBridge).

Pursuant to the terms of the exchange agreements, BayBridge agreed to surrender and exchange several outstanding promissory notes with an aggregate principal balance of $829,000, and aggregate accrued interest of $97,000, for convertible notes ("Exchange Notes") with an aggregate principal amount of $1,160,000 and aggregate original issue discounts of $234,000.

The Exchange Notes are unsecured, have no applicable registration rights, bear interest at a rate of 12% per annum, and matured between September 7, 2019 and August 22, 2020. The notes contain standard and customary events of default.

The terms of the Exchange Notes included a conversion feature which was the lesser of (i) a price range of $0.0005 to $0.15, or (ii) a range of 65% to 70% of the lowest traded price for the shares over the prior five trading days.

During 2019, aggregate principal of $281,900 and interest of $8,407 had been converted into 1 billion shares of common stock and no cash payments of principal or interest were made on these exchange notes.

The following table summarizes the conversion activity of these notes:

Conversion Period	Principal Converted	Interest Converted	Common Shares Issued
Q1 2019	90,500	3,278	47,400,806
Q2 2019	88,500	2,079	141,822,223
Q3 2019	86,000	2,261	616,247,346
Q4 2019	16,900	789	176,886,700
	$ 281,900	$ 8,407	982,357,075

The conversion option associated with the notes was deemed to include an embedded derivative that required bifurcation and separate accounting. Refer to Note 13. Derivative Liabilities for further details.

On September 11, 2020, the Baybridge Convertible Notes were assigned to BD 1 as part of the Company's recapitalization and restructuring effort which began in June 2020. The Company subsequently entered into an Exchange Agreement with BD 1 on December 18, 2020. Refer to the *BD 1 Convertible Notes* in Note 12. Convertible Notes for further discussion.

Bellridge Convertible Notes

Prior to 2019, the Company had issued convertible notes to Bellridge Capital, LP (“Bellridge”) which had aggregate principal and accrued interest balances of $455,000 and $40,863, respectively, as of January 1, 2019.

On October 22, 2019, the Company and Bellridge entered into an exchange agreement to exchange the outstanding Bellridge notes with principal and interest of $226,000 and $51,000, respectively, into a new note with a principal balance of $450,000. The note is not secured, contains no registration rights, has an interest rate of 10% per annum, matures on October 22, 2020, and contains standard and customary events of default. All principal and interest on the note are due upon maturity. Bellridge shall have the option to convert all or a portion of the amounts outstanding under the note, into shares of the Company's common stock. Conversions into common stock shall be calculated using a variable conversion price equal to the lesser of (i) $0.0005 or (ii) 70% of the lowest traded price for the shares over the prior ten-day trading period immediately preceding the conversion. The original issue discount of $173,000 will be charged to interest, ratably, over the life of the note.

On October 22, 2019, the Company and Bellridge entered into a new convertible promissory note with a principal balance of $60,000, in exchange for proceeds of $40,000. The note is not secured, contains no registration rights, has an interest rate of 10% per annum, matures on October 22, 2020, and contains standard and customary events of default. All principal and interest on the note are due upon maturity. Bellridge shall have the option to convert all or a portion of the amounts outstanding under the note, into shares of the Company's common stock. Conversions into common stock shall be calculated using a variable conversion price equal to the lesser of (i) $0.0005 or (ii) 70% of the lowest traded price for the shares over the prior ten-day trading period immediately preceding the conversion. The original issue discount of $20,000 will be charged to interest, ratably, over the life of the note.

Shares of common stock may not be issued pursuant to any of these notes if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 4.99% of the outstanding shares of Common Stock.

During 2019 and 2020, an aggregate principal of $288,000 and interest of $25,697, on the Bellridge convertible notes had been converted into 1,571,266,388 shares of common stock and no cash payments of principal or interest had been made.

The following table summarizes the conversion activity of these notes:

Conversion Period	Principal Converted	Interest Converted	Common Shares Issued
Q1 2019	65,615	4,507	38,696,339
Q2 2019	47,385	3,874	68,142,087
Q3 2019	89,000	9,779	529,061,862
Q4 2019	41,000	5,404	464,037,300
Q2 2020	45,000	2,133	471,328,800
	$ 288,000	$ 25,697	1,571,266,388

The conversion option associated with the notes was deemed to include an embedded derivative that required bifurcation and separate accounting. Refer to Note 13. Derivative Liabilities for further details.

On September 11, 2020, the Bellridge Convertible Notes were assigned to BD 1 as part of the Company’s recapitalization and restructuring effort which began in June 2020. The Company subsequently entered into an Exchange Agreement with BD 1 on December 18, 2020. Refer to the *BD 1 Convertible Notes* in Note 12. Convertible Notes for further discussion.

Power Up Convertible Notes

During 2018 and 2019, the Company entered into six securities purchase agreements with Power Up Lending Group, LTD ("Power Up"), for the private placement of three convertible notes with an aggregate principal amount of $376,000.

Beginning in six months after issuance, Power Up shall have the option to convert all or a portion of the amounts outstanding under the convertible note, into shares of the Company's common stock. Conversions into common stock shall be calculated using a variable conversion price equal to 65% of the average of the three lowest closing bid prices for the shares over the prior ten-day trading period immediately preceding the conversion.

Shares of common stock may not be issued pursuant to any of these notes if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 4.99% of the outstanding shares of Common Stock.

During 2019, an aggregate principal of $267,680 and interest of $9,000, on the Power Up convertible notes had been converted into 578,794,634 shares of common stock and no cash payments of principal or interest had been made.

The following table summarizes the conversion activity of these notes:

Conversion Period	Principal Converted	Interest Converted	Common Shares Issued
Q1 2019	$ 182,500	$ 7,300	95,014,902
Q2 2019	42,500	1,700	47,155,556
Q3 2019	14,600	-	155,824,176
Q4 2019	28,080	-	280,800,000
	$ 267,680	$ 9,000	578,794,634

The conversion option associated with the notes was deemed to include an embedded derivative that required bifurcation and separate accounting. Refer to Note 13. Derivative Liabilities for further details.

On September 11, 2020, the Power Up Convertible Notes were assigned to BD 1 as part of the Company's recapitalization and restructuring effort which began in June 2020. The Company subsequently entered into an Exchange Agreement with BD 1 on December 18, 2020. Refer to the *BD 1 Convertible Notes* in Note 12. Convertible Notes for further discussion.

Widjaja Convertible Note

On January 11, 2019, the Company entered into a note purchase with Jason Widjaja ("Widjaja"), for the private placement of a $330,000 convertible promissory note, in exchange for $330,000 of gross proceeds. The note is unsecured, bears interest at 12% per annum, matures on January 11, 2020, and contains standard and customary events of default including but not limited to: (i) failure to make payments when due under the note, and (ii) bankruptcy or insolvency of the Company. Principal and interest on the note will be payable upon maturity.

At any time after inception of the note, until fully paid, Widjaja shall have the option to convert all or a portion of amounts outstanding under the note into shares of the Company's common stock. Conversions into common stock shall be calculated using a variable conversion price equal to 80% of the lowest closing bid price for the shares over the prior five trading days immediately preceding the conversion date.

There are no registration rights applicable to the note. Shares of common stock may not be issued pursuant to the note if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 19.99% of the outstanding shares of the Company's common stock.

During 2019 and 2020, no principal and no interest had been converted into shares of common stock and no cash payments of principal or interest had been made.

The conversion option associated with the note was deemed to include an embedded derivative that required bifurcation and separate accounting. Refer to Note 13. Derivative Liabilities for further details.

On September 11, 2020, the Widjaja Convertible Note was assigned to BD 1 as part of the Company's recapitalization and restructuring effort which began in June 2020. The Company subsequently entered into an Exchange Agreement with BD 1 on December 18, 2020. Refer to the *BD 1 Convertible Notes* in Note 12. Convertible Notes for further discussion.

GS Capital Convertible Note

On February 22, 2019, the Company sold and issued to GS Capital Partners, LLC ("GS") a $108,000 aggregate principal amount unsecured convertible promissory note in exchange for $75,000 of gross proceeds, $6,000 in financing costs, and $27,000 of premium associated with the assignment of a note from a former investor. On August 26, 2019, the Company sold and issued to GS, an additional unsecured convertible promissory note in the amount of $70,500.

These notes are unsecured, bear interest at 8% per annum, matures twelve months from the date of issuance, and contain standard and customary events of default including but not limited to: (i) failure to make payments when due under the note, and (ii) bankruptcy or insolvency of the Company. Principal and interest on the note will be payable upon maturity. There are no registration rights applicable to the note.

At any time after inception of the note until fully paid, GS shall have the option to convert all or a portion of amounts outstanding under the note into shares of the Company's common stock. Conversions into common stock shall be calculated using a variable conversion price equal to 65% of the average of the three lowest closing bid prices for the shares over the prior ten day trading period immediately preceding the conversion.

Shares of common stock may not be issued pursuant to the note if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 4.99% of the outstanding shares of the Company's common stock.

During 2019, principal of $84,068 and interest of $5,766 had been converted into 473,445,228 million shares of common stock and no cash payments of principal or interest had been made.

The following table summarizes the conversion activity of these notes:

Conversion Period	**Principal Converted**	**Interest Converted**	**Common Shares Issued**
Q2 2019	$ 15,000	$ 763	17,321,692
Q3 2019	57,718	4,284	335,425,736
Q4 2019	11,350	719	120,697,800
	$ 84,068	$ 5,766	473,445,228

The conversion option associated with the notes was deemed to include an embedded derivative that required bifurcation and separate accounting. Refer to Note 13. Derivative Liabilities for further details.

On September 11, 2020, the GS Convertible Note was assigned to BD 1 as part of the Company's recapitalization and restructuring effort which began in June 2020. The Company subsequently entered into an Exchange Agreement with BD 1 on December 18, 2020. Refer to the *BD 1 Convertible Notes* in Note 12. Convertible Notes for further discussion.

Penumbra Convertible Note

On June 9, 2020, the Company issued to Penumbra Solar, Inc. ("Penumbra") a $250,000 aggregate principal amount convertible promissory note. The Company has received $250,000 of gross proceeds from the offering of the note. The aggregate principal amount (together with accrued interest) will mature on June 9, 2021. The note bears interest at a rate of 6% per annum. The interest rate increases to 18% in the event of a default. The note is convertible, at the holder's option, into shares of the Company's Common Stock at a conversion price equal to $0.0001 per share.

On September 25, 2020, the Penumbra Convertible Note was assigned to Crowdex.

Crowdex Convertible Note

On September 25, 2020, as discussed above, Penumbra assigned its note to Crowdex. At December 31, 2020, the note had a principal balance of $250,000 and an accrued interest balance of $8,425. The aggregate principal amount (together with accrued interest) will mature on June 9, 2021. The note bears an interest rate of 6% per annum. The interest rate increases to 18% in the event of a default. The note is convertible, at the holder's option, into shares of the Company's Common Stock at a conversion price equal to $0.0001 per share.

BD 1 Convertible Note

During September 2020, a number of the Company's investors entered into assignment agreements to sell their existing debt to BD 1. Refer to Notes 10, 11, and 12, for more information. The assignments transferred ownership of the following debts:

- The outstanding principal and interest of $2.16 million and $417,000, respectively, related to the St. George Secured Promissory Notes discussed in Note 10 was assigned to BD 1. The terms of the notes remained the same.

- The outstanding principal and interest of $495,000 and $187,000, respectively, related to the Investor 1 Promissory Notes discussed in Note 11 was assigned to BD 1. The terms of the notes remained the same.

- The outstanding principal and interest of $650,000 and $86,000, respectively, related to the Investor 2 Promissory Notes discussed in Note 11 was assigned to BD 1. The terms of the notes remained the same.

- The outstanding principal and interest of $330,000 and $79,000, respectively, related to the October 2016 Convertible Notes discussed in Note 12 was assigned to BD 1. The terms of the notes remained the same.

- The outstanding principal of $618,000, related to the St. George Convertible Note discussed in Note 12 was assigned to BD 1. The terms of the note remained the same.

- The outstanding principal and interest of $941,000 and $152,000, respectively, related to the Baybridge Convertible Notes discussed in Note 12 was assigned to BD 1. The terms of the notes remained the same.

- The outstanding principal and interest of $677,000 and $121,000, respectively, related to the Bellridge Convertible Notes discussed in Note 12 was assigned to BD 1. The terms of the notes remained the same.

- The outstanding principal and interest of $107,000 and $16,000, respectively, related to the Power Up Convertible Notes discussed in Note 12 was assigned to BD 1. The terms of the notes remained the same.

- The outstanding principal and interest of $330,000 and $68,000, respectively, related to the Widjaja Convertible Notes discussed in Note 12 was assigned to BD 1. The terms of the notes remained the same.

- The outstanding principal and interest of $170,000 and $19,000, respectively, related to the GS Capital Convertible Notes discussed in Note 12 was assigned to BD 1. The terms of the notes remained the same.

On December 18, 2020, the Company entered into a securities exchange agreement ("BD1 Exchange Agreement") with BD 1, who had previously acquired all of the Company's existing outstanding unsecured notes (other than notes held by GI and Crowdex) from the original note holders as listed above.

Pursuant to the terms of the BD1 Exchange Agreement, BD 1 agreed to surrender and exchange all of its outstanding promissory notes with principal balances of approximately $10.4 million (including accrued interest and default penalties). In exchange, the Company issued to BD 1 two unsecured convertible notes with an aggregate principal amount of $10,500,000 ("BD1 Exchange Notes"). The BD1 Exchange Notes do not bear any interest, and will mature on December 18, 2025. BD 1 has the right, at any time until the BD1 Exchange Notes are fully paid, to convert any outstanding and unpaid principal into shares of Common Stock at a fixed conversion price equal to

$0.0001 per share. Accordingly, the Company would issue 105,000,000,000 shares of Common Stock upon a full conversion of the BD 1 Exchange Notes.

NOTE 13. DERIVATIVE LIABILITIES

The following table is a summary of the derivative liability activity for the years ended December 31, 2020 and 2019:

Derivative Liability Balance as of December 31, 2018	**$ 10,114,452**
Additional derivative liability on new notes	4,507,380
Change in fair value of derivative liability	(6,196,026)
Liability extinguished	(708,656)
Derivative Liability Balance as of December 31, 2019	**7,717,150**
Additional derivative liability on new notes	447,903
Change in fair value of derivative liability	(2,861,069)
Derivative Liability Balance as of December 31, 2020	**$ 5,303,984**

Convertible Notes Assigned to BD 1

The convertible notes that were assigned to BD 1 in September 2020, further described above in Notes 10 and 12, were exchanged for new notes as part of the Company's recapitalization and restructuring effort which began in June 2020. Prior to the exchange, pursuant to a number of factors outlined in ASC Topic 815, *Derivatives and Hedging*, the conversion options in the notes were deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. The fair value measurements rely primarily on Company-specific inputs and the Company's own assumptions. With the absence of observable inputs, the Company determined these recurring fair value measurements reside primarily within Level 3 of the fair value hierarchy. The derivative associated with the notes approximates management's estimate of the fair value of the embedded derivative liability based on using a Monte Carlo simulation following a Geometric Brownian Motion with the following assumptions identified below.

At December 31, 2019, the aggregate derivative liability associated with these notes was $5,706,175. This value was derived from Management's fair value assessment using the following assumptions: annual volatility range of 42% to 46%, present value discount rate of 12%, and a dividend yield of 0%.

During the first three quarters of 2020, pursuant to ASC Topic 815, *Derivatives and Hedging*, Management conducted quarterly fair value assessments of the embedded derivatives associated with these notes. Engaging the services of a firm specializing in these valuations, it was determined that a rational investor would not convert the notes, and would not expect to do so in the foreseeable future. The Company had reported doubt as to its ability to continue as a going concern since 2015. The Company scaled down operations and did not expect to ramp up until significant financing could be obtained and has been operating under these conditions for some time already, continuously chasing funding to continue operations. Circumstances shifted in late 2019 and early 2020, making fundraising and continuing operations more difficult, thereby reducing liquidity and attractiveness of the common stock. These new circumstances made it clear to current and prospective investors that the Company would either file bankruptcy or restructure with a strategic investor. Accordingly, as of the valuation date, conversion of a debt instrument into common stock that cannot be sold in the marketplace would put the holder in a far less secure position compared to holding the instrument as debt. As a result of the fair value assessments, the Company recorded an aggregate net gain of $5,706,175 for the year ended December 31, 2020, as "Change in fair value of derivatives and gain/loss on extinguishment of liabilities, net" in the Consolidated Statements of Operations to properly reflect that the value of the embedded derivative had been eliminated in 2020.

Convertible Notes held by Global Ichiban

In connection with the convertible notes held by Global, further described above in Note 10, pursuant to a number of factors outlined in ASC Topic 815, *Derivatives and Hedging*, the conversion options in the notes were deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. The fair value measurements rely primarily on Company-specific inputs and the Company's own assumptions. With the absence of observable inputs, the Company determined these recurring fair value measurements reside primarily within Level 3 of the fair value hierarchy. The derivative associated with the notes approximates management's estimate of the fair value of the embedded derivative liability based on using a Monte Carlo simulation following a Geometric Brownian Motion with the following assumptions identified below.

At December 31, 2019, the aggregate derivative liability associated with these notes was $2,010,975. This value was derived from Management's fair value assessment using the following assumptions: annual volatility of 46%, present value discount rate of 12%, and a dividend yield of 0%.

The conversion option in the GI Exchange Note was deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance based on the following assumptions: annual volatility of 49%, expected interest rate of 1.52%, and a dividend yield of 0%, and appropriately recorded that value as a derivative liability. At September 9, 2020, the derivative liability associated with the Global note was $447,903. The fair value of the derivative was recorded as a debt discount and will be charged to interest over the life of the note.

The derivative liability associated with the note is subject to revaluation on a quarterly basis to reflect the market value change of the embedded conversion option. Management assessed the fair value option of this embedded derivative, as of December 31, 2020, using the following assumptions: annual volatility of 62%, and a dividend yield of 0%. As a result of the fair value assessments, the Company recorded an aggregate net loss of $2,845,106 for the year ended December 31, 2020, as "Change in fair value of derivatives and gain/loss on extinguishment of liabilities, net" in the Consolidated Statement of Operations to properly reflect that the value of the embedded derivative of $5,303,984 as of December 31, 2020.

NOTE 14. SERIES A PREFERRED STOCK

In June 2013, the Company entered into a Securities Purchase Agreement with an investor to sell an aggregate of $750,000 shares of Series A Preferred Stock at a price of $8.00 per share, resulting in gross proceeds of $6.0 million. This purchase agreement included warrants to purchase up to 13,125 shares of common stock of the Company. The transfer of cash and securities took place incrementally, the first closing occurring on June 17, 2013 with the transfer of 125,000 shares of Series A Preferred Stock and a warrant to purchase 2,187 shares of common stock for $1.0 million. The final closings took place in August 2013, with the transfer of 625,000 shares of Series A Preferred Stock and a warrant to purchase 10,938 shares of common stock for $5.0 million.

Holders of Series A Preferred Stock are entitled to cumulative dividends at a rate of 8% per annum when and if declared by the Board of Directors in its sole discretion. The dividends may be paid in cash or in the form of common stock (valued at 10% below market price, but not to exceed the lowest closing price during the applicable measurement period), at the discretion of the Board of Directors. The dividend rate on the Series A Preferred Stock is indexed to the Company's stock price and subject to adjustment. In addition, the Series A Preferred Stock contains a make-whole provision whereby, conversion or redemption of the preferred stock within 4 years of issuance will require dividends for the full four year period to be paid by the Company in cash or common stock (valued at 10% below market price, but not to exceed the lowest closing price during the applicable measurement period). This make-whole provision expired in June 2017.

The Series A Preferred Stock may be converted into shares of common stock at the option of the Company if the closing price of the common stock exceeds $232, as adjusted, for twenty consecutive trading days, or by the holder at any time. The Company has the right to redeem the Series A Preferred Stock at a price of $8.00 per share, plus any accrued and unpaid dividends, plus the make-whole amount (if applicable). At December 31, 2020, the preferred shares were not eligible for conversion to common shares at the option of the Company. The holder of the preferred shares may convert to common shares at any time, at no cost, at a ratio of 1 preferred share into 1 common share (subject to standard ratable anti-dilution adjustments). Upon any conversion (whether at the option of the Company or the holder), the holder is entitled to receive any accrued but unpaid dividends.

On October 6, 2016, the Series A Holder entered into an exchange agreement with a private investor. Pursuant to the exchange agreement, beginning December 5, 2016, the investor has the option to exchange, from time to time, all or any portion of the October 2016 Convertible Notes (see Note 12) for outstanding shares of Series A Preferred Stock from the Series A Holder.

Except as otherwise required by law (or with respect to approval of certain actions), the Series A Preferred Stock shall have no voting rights. Upon any liquidation, dissolution or winding up of the Company, after payment or provision for payment of debts and other liabilities of the Company, the holders of Series A Preferred Stock shall be entitled to receive, pari passu with any distribution to the holders of common stock of the Company, an amount equal to $8.00 per share of Series A Preferred Stock plus any accrued and unpaid dividends.

As of December 31, 2020, there were 48,100 shares of Series A Preferred Stock outstanding and accrued and unpaid dividends of $367,965.

NOTE 15. SERIES 1A PREFERRED STOCK

Series 1A Preferred Stock – Tranche 1 Closing

On September 22, 2020, the Company entered into a securities purchase agreement ("Series 1A SPA") with Crowdex, for the private placement of up to $5,000,000 of the Company's newly designated Series 1A Convertible Preferred Stock ("Series 1A Preferred Stock").

The Company sold 2,000 shares of Series 1A Preferred Stock to Crowdex in exchange for $2,000,000 of gross proceeds at an initial closing under the Series 1A SPA on September 22, 2020.

In November 2020, Crowdex converted 1,200 shares of outstanding Series 1A Preferred Stock into 12,000,000,000 shares of Common Stock.

On December 31, 2020 the Company sold 500 shares of Series 1A Preferred Stock to Crowdex in exchange for the cancellation of the Crowdex Note issued on November 27, 2020. There were no additional cash proceeds from this closing.

NOTE 16. STOCKHOLDERS' EQUITY (DEFICIT)

Common Stock

At December 31, 2020, the Company had 20.0 billion shares of common stock, $0.0001 par value, authorized for issuance. Each share of common stock has the right to one vote. As of December 31, 2020, the Company had 18,102,583,473 shares of common stock outstanding. The Company has not declared or paid any dividends related to the common stock through December 31, 2020.

Preferred Stock

At December 31, 2020, the Company had 25,000,000 shares of preferred stock, $0.0001 par value, authorized for issuance. Preferred stock may be issued in classes or series. Designations, powers, preferences, rights, qualifications, limitations and restrictions are determined by the Company's Board of Directors. The following table summarizes the designations, shares authorized, and shares outstanding for the Company's Preferred Stock:

Preferred Stock Series Designation	Shares Authorized	Shares Outstanding
Series A	750,000	48,100
Series 1A	5,000	1,300
Series B-1	2,000	—
Series B-2	1,000	—
Series C	1,000	—
Series D	3,000	—
Series D-1	2,500	—
Series E	2,800	—
Series F	7,000	—
Series G	2,000	—
Series H	2,500	—
Series I	1,000	—
Series J	1,350	—
Series J-1	1,000	—
Series K	20,000	—

Series A Preferred Stock

Refer to Note 14 for Series A Preferred Stock activity.

Series 1A Preferred Stock

Refer to Note 14 for Series 1A Preferred Stock activity.

Series B-1, B-2, C, D, D-1, E, F, G, H, I, J, J-1, and K Preferred Stock

There were no transactions involving the Series B-1, B-2, C, D, D-1, E, G, H, I, J, J-1, or K during the years ended December 31, 2020 and 2019.

NOTE 17. EQUITY PLANS AND SHARE-BASED COMPENSATION

Share-Based Compensation: The Company measures share-based compensation cost at the grant date based on the fair value of the award and recognizes this cost as an expense over the grant recipients' requisite service periods for all awards made to employees, officers, directors and consultants.

The share-based compensation expense recognized in the Consolidated Statements of Operations was as follows:

	For the Year Ended December 31,	
	2020	2019
Research and development	$ -	$ -
Selling, general and administrative	-	21,000
Total share-based compensation cost	$ -	$ 21,000

Stock Options: There was no expense recorded for the year ended December 31, 2020 related to stock option awards. The Company recognized share-based compensation expense for stock options of $21,000 to officers, directors and employees for year ended December 31, 2019 related to stock option awards, reduced for forfeitures. There were no option grants during the year ended December 31, 2020 or 2019.

As of December 31, 2020, there were no unvested stock options. As of December 31, 2020, 97 shares were vested, and 120 shares remained available for future grants under the Option Plan.

The following table summarizes stock option activity within the Stock Option Plan:

	Stock Option Shares	Weighted Average Remaining Contractual Life in Years
Outstanding at December 31, 2018	110	5.18
Granted	-	
Exercised	-	
Canceled	(13)	
Outstanding at December 31, 2019	97	5.18
Granted	-	
Exercised	-	
Canceled	-	
Outstanding and Exercisable at December 31, 2020	97	4.43

Restricted Stock: The Company did not recognize share-based compensation expense related to restricted stock grants for the years ended December 31, 2020 and 2019. There were no restricted stock grants for the years ended December 31, 2020 and 2019.

As of December 31, 2020, there was no unrecognized share-based compensation expense from unvested restricted stock, no shares were expected to vest in the future, and 496 shares remained available for future grants under the Restricted Stock Plan.

NOTE 18. PAYCHECK PROTECTION PROGRAM LOAN

On April 17, 2020, the Company obtained a PPP Loan from Vectra Bank Colorado ("Vectra") in the aggregate amount of $193,200, which was established under the CARES Act, as administered by the Small Business Administration ("SBA"). Under the terms of the CARES Act and the PPP, all or a portion of the principal amount of the PPP Loan is subject to forgiveness so long as, over the 24-week period following the Company's receipt of the proceeds of the PPP Loan, the company uses those proceeds for payroll costs, rent, utility costs or the maintenance of employee and compensation levels. The PPP Loan is unsecured, guaranteed by the SBA, and has a two year term, maturing on April 17, 2022. Interest accrues on the loan beginning with the initial disbursement; however, payments of principal and interest are deferred until Vectra's determination of the amount of forgiveness applied for by the Company is approved by the SBA. If the Company does not apply for forgiveness within 10 months after the last day of the covered period (defined, at the Company's election as 24 weeks), such payments will be due that month.

The terms of the PPP loan provide for customary events of default including, among other things, payment defaults, breach of representations and warranties, and insolvency events.

The Company plans to apply for forgiveness of the PPP Loan in the second quarter of 2021.

The PPP Loan is subject to any new guidance and new requirements released by the Department of the Treasury.

At December 31, 2020 the outstanding principal and accrued interest balance of the PPP Loan was $193,200 and $1,366, respectively.

NOTE 19. INCOME TAXES

The Company records income taxes using the liability method. Under this method, deferred tax assets and are computed for the expected future impact of temporary differences between the financial statement and income tax bases of assets and liabilities using current income tax rates and for the expected future tax benefit to be derived from tax loss and tax credit carryforwards. ASC 740 provides detailed guidance for the financial statement recognition, measurement and disclosure of uncertain tax positions recognized in the financial statements. Tax positions must meet a "more-likely-than-not" recognition threshold before a benefit is recognized in the financial statements.

At December 31, 2020, the Company had $233.6 million of cumulative net operating loss carryforwards for federal income tax purposes that were available to offset future taxable income through the year 2037. At December 31, 2020, the Company had $58.1 million of cumulative net operating loss carryforwards for federal income tax purposes that were available to offset future taxable income indefinitely. Under the Internal Revenue Code, the future utilization of net operating losses may be limited in certain circumstances where there is a significant ownership change. The Company prepared an analysis for the year ended December 31, 2012 and determined that a significant change in ownership had occurred as a result of the cumulative effect of the sales of common stock through its offerings. Such change limited the Company's utilizable net operating loss carryforwards to $291.7 million for the year ended December 31, 2020. Available net operating loss carryforwards may be further limited in the event of another significant ownership change.

Deferred income taxes reflect an estimate of the cumulative temporary differences recognized for financial reporting purposes from that recognized for income tax reporting purposes. At December 31, 2020 and 2019, the components of these temporary differences and the deferred tax asset were as follows:

	As of December 31,	
	2020	2019
Deferred Tax Asset		
Accrued Expenses	$ 22,000	$ 14,000
Inventory Allowance	137,000	134,000
Other	10,000	11,000
Operating Lease Liability	1,183,000	—
Stock Based Compensation-Stock Options and Restricted Stock	—	951,000
Tax effect of NOL carryforward	72,307,000	68,886,000
Depreciation	355,000	3,736,000
Warranty reserve	3,000	6,000
Gross Deferred Tax Asset	74,017,000	73,738,000
Valuation Allowance	(72,555,000)	(73,552,000)
Net Deferred Tax Asset	$ 1,462,000	$ 186,000
Operating lease right-of-use asset, net	(1,287,000)	—
Amortization	(175,000)	(186,000)
Net Deferred Tax Liability	$ (1,462,000)	$ (186,000)
Total	—	—

In assessing the realizability of deferred tax assets, management considers whether it is more likely than not that some portion or all of the deferred tax assets will be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the periods in which those temporary differences become deductible. Management considers the scheduled reversal of deferred tax liabilities, projected future taxable income and tax planning strategies in making this assessment. Based upon the level of historical losses and projections of future taxable income over the periods in which the deferred tax assets are deductible, management believes it is not more-likely-than-not that the Company will realize the benefits of these deductible differences at December 31, 2020. The Company's deferred tax valuation allowance of $72.6 million reflected above is a decrease of $1 million from the valuation allowance reflected as of December 31, 2019 of $73.6 million.

As of December 31, 2019, the Company has not recorded a liability for uncertain tax positions. The Company recognizes interest and penalties related to uncertain tax positions in income tax (benefit)/expense. No interest and penalties related to uncertain tax positions were accrued at December 31, 2020.

The Company's effective tax rate for the years ended December 31, 2020 and 2019 differs from the statutory rate due to the following (expressed as a percentage of pre-tax income):

	2020	2019
Federal statutory rate	21.0 %	21.0 %
State statutory rate	6.9 %	4.1 %
Change in rate	— %	(11.0)%
Permanent tax differences	3.7 %	(0.3)%
Derivative/Warrant Revaluation	(30.9)%	26.7 %
Debt Discount	1.6 %	(0.7)%
Loss on Extinguishment of Liabilities	— %	— %
Deferred true-ups	48.9 %	(7.3)%
Other	— %	— %
Change in valuation allowance	(51.2)%	(32.5)%
	— %	— %

NOTE 20. COMMITMENTS AND CONTINGENCIES

In May 2019, the Company's former law firm filed suit against the Company in District Court in Adams County Colorado in an effort to collect approximately $1.2 million of unpaid fees (and related interest charges). On September 11, 2020, the Company entered into a settlement agreement (the "Settlement Agreement") with its former law firm. Pursuant to the Settlement Agreement, the Company paid $120,000 on September 23, 2020 as the full and final settlement of all amounts owed between the parties. Following such payment, a satisfaction of an existing judgment in favor of such law firm was filed in Adams County Colorado.

On July 29, 2020, the Company's owned facility at 12300 Grant Street, Thornton, CO 80241 (the "Building") was foreclosed by the Building's first lien holder ("Mortgage Holder") and sold at public auction. The successful bidder for the Building was the Mortgage Holder, at the price of $7.193 million. As a result, the Company's obligations to Mortgage Holder and all of the Company's outstanding real property taxes on the Building were considered fully repaid.

The Company is subject to various legal proceedings, both asserted and unasserted, that arise in the ordinary course of business. The Company cannot predict the ultimate outcome of such legal proceedings or in certain instances provide reasonable ranges of potential losses. However, as of the date of this report, the Company believes that none of these claims will have a material adverse effect on its consolidated financial position or results of operations. In the event of unexpected subsequent developments and given the inherent unpredictability of these legal proceedings, there can be no assurance that the Company's assessment of any claim will reflect the ultimate outcome, and an adverse outcome in certain matters could, from time to time, have a material adverse effect on the Company's consolidated financial position or results of operations in particular quarterly or annual periods.

NOTE 21. RETIREMENT PLAN

On July 1, 2006, the Company adopted a qualified 401(k) plan which provides retirement benefits for all of its eligible employees. Under the plan, employees become eligible to participate at the first entry date, provided they are at least 21 years of age. The participants may elect through salary reduction to contribute up to ceilings established in the Internal Revenue Code. The Company will match 100% of the first six percent of employee contributions. In addition, the Company may make discretionary contributions to the Plan as determined by the Board of Directors. Employees are immediately vested in all salary reduction contributions. Rights to benefits provided by the Company's discretionary and matching contributions vest 100% after the first year of service for all employees hired before January 1, 2010. For employees hired after December 31, 2009, matching contributions vest over a three-year period, one-third per year. There were no payments for 401(k) matching in the year ended December 31, 2020, and there were $37,000 in payments for 401(k) matching for the year ended December 31, 2019. Payments for 401(k) matching are recorded under "Research, development and manufacturing operations" expense and "Selling, general and administrative" expense in the Consolidated Statements of Operations.

NOTE 22. SUBSEQUENT EVENTS

The Company was in a dormant status for most of 2020 due to financial constraints as well as delays in reorganization and fund-raising efforts due to the impact of COVID-19. Below is the sequence of events subsequent to December 31, 2020 through the Audit Report date of May 13, 2021:

<u>Series 1A Preferred Stock – Tranche 2 Closing</u>

On January 4, 2021, the Company entered into a securities purchase agreement ("Series 1ATranche 2 SPA") with TubeSolar AG, a developer of photovoltaic thin-film tubes to enable additional application opportunities in solar power generation compared to conventional solar modules ("TubeSolar"). Pursuant to the Series 1A Tranche 2 SPA, the Company sold 2,500 shares of Series 1A Preferred Stock to TubeSolar and received $2,500,000 of gross proceeds on January 5, 2021. There are no registration rights applicable to the Series 1A Preferred Stock.

<u>Common Stock Purchase Agreement</u>

On March 4, 2021, the Company entered into a common stock purchase agreement ("Common Stock SPA" with Baybridge Capital Fund, LP, a private investor ("BBCF") for the placement of 75,000,000 shares of the Company's Common Stock (the "Shares") at a fixed price of $0.04 per share. On March 9, 2021, the Company sold the Shares to BBCF in exchange for $3,000,000 of gross proceeds.

Global Ichiban Settlement Agreement

On March 9, 2021, the Company entered into a settlement agreement ("Settlement") with our current secured promissory note holder, Global Ichiban Limited ("Global"). Pursuant to the Settlement, the Company issued 168,000,000 shares of Common Stock of the Company ("Settlement Shares") to Global in exchange for the cancellation of the outstanding secured promissory note of $5,800,000 (the "Secured Note"). The Secured Note, which was originally scheduled to mature on September 30, 2022, had a variable-rate conversion feature that entitled Global to convert into shares of Common Stock of the Company at 80% of the 5-day average closing bid-price prior to any conversion. The Secured Note also had a lien on substantially all of the Company's assets including intellectual properties. Following the Settlement, the lien shall be removed and all of the Company's assets shall be unencumbered going forward.

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

(Mark One)

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2019

or

☐ **TRANSITION REPORT UNDER SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the Transition Period from to

Commission File No. 001-32919

Ascent Solar Technologies, Inc.
(Exact name of registrant as specified in its charter)

Delaware	**20-3672603**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
12300 Grant Street, Thornton, CO	**80241**
(Address of principal executive offices)	**(Zip Code)**

Registrant's telephone number including area code: 720-872-5000

Securities registered pursuant to Section 12(b) of the Act:

Title of Each Class	Name of Each Exchange on Which Registered
Common Stock, $0.0001 par value per share	OTCBB Market

Securities registered pursuant to Section 12(g) of the Act:
None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☐ No ☒

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Exchange Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☐ No ☒

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). ☒ Yes ☐ No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act:

Large accelerated filer ☐ Accelerated filer ☐

Non-accelerated filer ☐	Smaller reporting company ☒
	Emerging growth company ☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

As of June 28, 2019 , the last business day of the registrant's most recently completed second fiscal quarter, the aggregate market value of the registrant's common stock held by non-affiliates was approximately $696,000 based upon the last reported sale price of the registrant's common stock on that date as reported by OTCBB Market, operated by OTC Markets Group Inc.

As of January 29, 2021, there were 18,102,583,471 shares of our common stock issued and outstanding.

ASCENT SOLAR TECHNOLOGIES, INC.
Form 10-K Annual Report
for the Fiscal Year ended December 31, 2019
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FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K includes “forward-looking statements” that involve risks and uncertainties. Forward-looking statements include statements concerning our plans, objectives, goals, strategies, future events, future net sales or performance, capital expenditures, financing needs, plans or intentions relating to acquisitions, business trends and other information that is not historical information and, in particular, appear under headings including “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and “Business.” When used in this Annual Report, the words “estimates,” “expects,” “anticipates,” “projects,” “plans,” “intends,” “believes,” “forecasts,” “foresees,” “likely,” “may,” “should,” “goal,” “target,” and variations of such words or similar expressions are intended to identify forward-looking statements. All forward-looking statements are based upon information available to us on the date of this Annual Report.

These forward-looking statements are subject to risks, uncertainties and other factors, many of which are outside of our control, that could cause actual results to differ materially from the results discussed in the forward-looking statements, including, among other things, the matters discussed in this Annual Report in the sections captioned “Risk Factors” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations.” Factors you should consider that could cause these differences are:

- Our limited operating history and lack of profitability;
- Our ability to develop demand for, and sales of, our products;
- Our ability to attract and retain qualified personnel to implement our business plan and corporate growth strategies;
- Our ability to develop sales, marketing and distribution capabilities;
- Our ability to successfully develop and maintain strategic relationships with key partners, including OEMs, system integrators, distributors, retailers and e-commerce companies, who deal directly with end users in our target markets;
- The accuracy of our estimates and projections;
- Our ability to secure additional financing to fund our short-term and long-term financial needs;
- Our ability to maintain the listing of our common stock on the OTCBB Market;
- The commencement, or outcome, of legal proceedings against us, or by us, including ongoing ligation proceedings;
- Changes in our business plan or corporate strategies;
- The extent to which we are able to manage the growth of our operations effectively, both domestically and abroad, whether directly owned or indirectly through licenses;
- The supply, availability and price of equipment, components and raw materials, including the elements needed to produce our photovoltaic modules;
- Our ability to expand and protect the intellectual property portfolio that relates to our consumer electronics, photovoltaic modules and processes;
- Our ability to implement remediation measures to address material weaknesses in internal control;
- General economic and business conditions, and in particular, conditions specific to consumer electronics and the solar power industry; and
- Other risks and uncertainties discussed in greater detail in the section captioned "Risk Factors."

There may be other factors that could cause our actual results to differ materially from the results referred to in the forward-looking statements. We undertake no obligation to publicly update or revise forward-looking statements to reflect subsequent events or circumstances after the date made, or to reflect the occurrence of unanticipated events, except as required by law.

References to “we,” “us,” “our,” “Ascent,” “Ascent Solar” or the “Company” in this Annual Report mean Ascent Solar Technologies, Inc.

PART I

Item 1. Business

Business Overview

Ascent Solar was formed in October 2005 as a spinoff from technology incubator, ITN Energy Systems, Inc. (“ITN”), of its Advanced Photovoltaic Division and all of that division’s key personnel and core technologies to commercialize flexible photovoltaic (“PV”) modules using our proprietary monolithic integration thin film technology. The technology was initially developed at ITN beginning in 1994 and subsequently assigned and licensed to us at formation in 2005. Our proprietary manufacturing process deposits multiple layers of materials, including a thin film of highly efficient copper-indium-gallium-diselenide (“CIGS”) semiconductor material, on a flexible, lightweight, high tech plastic substrate using a roll-to-roll manufacturing process followed by laser patterning the layers to create interconnected PV cells, or PV modules, in a process known as monolithic integration. We believe that our unique technology and manufacturing process, which results in a much lighter, flexible yet durable module package, provides us with unique market opportunities relative to both the crystalline silicon (“c-Si”) based PV manufacturers that currently lead the PV market, as well as other thin film PV manufacturers that use substrate materials such as glass, stainless steel or other metals that can be heavier and more rigid than plastics.

We believe that the use of CIGS on a flexible, durable, lightweight, high tech plastic substrate will allow for unique and seamless integration of our PV modules into a variety of applications such as aerospace, defense, transportation, electronic products, off-grid structures and building integrated, as well as other products and applications that may emerge. For markets that place a high premium on weight, such as defense, space, near space, and aeronautic markets, we believe our materials provide attractive increases in power-to-weight ratio (specific power), and that our materials have superior specific power and voltage-to-area ratios than competing flexible PV thin film technologies. These metrics will be critical as we position ourselves to compete in challenging high value markets such as aerospace where Ascent Solar products can be integrated into satellites, near earth orbiting vehicles, airships and fixed wing unmanned aerial vehicles ("UAV").

Product History

In March 2008, we demonstrated initial operating capacity of our first production line by beginning production trials as an end-to-end integrated process. Initial operating capacity production trials resulted in average thin film device efficiencies of 9.5% and small area monolithically integrated module efficiencies of over 7.0%. During 2008, optimization trials resulted in thin film device efficiencies in the 9.5% to 11.5% range and corresponding module efficiencies in the 7.0% to 9.0% range. The test modules measured approximately 15 centimeters wide by 30 centimeters long. During the first quarter of 2009, we began limited production of monolithically integrated flexible CIGS modules in our initial production line. Our primary business model, at that time, was based upon mass production of solar modules of varying lengths, sizes and configurations. We provided sample modules to potential customers and development partners in various industries to explore integration of our products into new applications.

In July 2009, we obtained independent verification by the U.S. Department of Energy’s National Renewable Energy Laboratory (“NREL”) that our modules of approximately 15 centimeters wide by 30 centimeters long measured 10.4% in conversion efficiency. The modules tested at NREL were approximately 15 centimeters wide by 30 centimeters long. In October 2009, NREL further verified our achievement of a manufacturing milestone of 14.0% cell efficiency as well as a peak efficiency of 11.4% for CIGS modules. Later, in December 2010, we achieved 12.1% module efficiency on the same form factor. In October 2010, we completed internal qualification testing of a flexible packaging solution which successfully passed the rigorous standard of one thousand (1,000) hours of damp heat testing (85% relative humidity and 85° C temperature) guideline set forth by International Electrotechnical Commission (“IEC”) 61646 standards for performance and long-term reliability of thin film solar modules.

In February 2010, three of our product configurations were certified by an independent laboratory on a variety of U.S. Department of Defense (“DOD”) rugged standards known as MIL-STD-810G. In October 2010, we completed full external certification under IEC 61646 at an independent laboratory of a two-meter module. Achieving this certification is required for building integrated photovoltaic ("BIPV") and building applied photovoltaic ("BAPV") applications used in commercial, industrial and residential rooftop markets. Certification activities will continue as required as we introduce new products and make changes or improvements to our already certified products.

In 2010, we received an award from R&D Magazine and were recognized as one of the 100 Most Innovative Technologies based on our process of monolithic integration on polyimide substrate. In 2011, Time Magazine selected us as one of the 50

Best Inventions of the year. In 2015 Ascent Solar won its second R&D 100 Award. The 2015 award was given for the development of the MilPak™ platform, a military-grade (MIL-STD-810G tested) and fully integrated solar power generation and storage unit incorporated with a Maximum Peak Power Tracking (MPPT) management system. The MilPak platform is one of the most rugged, yet lightweight, power generation and storage solutions available, both attributes enabled by the use of Ascent's CIGS technology.

In 2012, we evolved our business model to include B2C, solution based, PV integrated consumer electronics to complement our off grid high value solar power generation strategy. In June of 2012, we launched our new line of consumer products under the EnerPlex™ brand, and introduced our first product, the Surfr™; a battery and solar case for the Apple® iPhone® 4/4S smart phone featuring our ultra-light CIGS thin film technology integrated directly into the case. The case incorporates our ultra-light and thin PV module into a sleek, protective iPhone 4/4S case, along with a thin, life extending, lithium-polymer battery. The case adds minimal weight and size to an iPhone smartphone, yet provides supplemental charging when needed. In August of 2012, we announced the launch of the second version of the Surfr for the Samsung® Galaxy S® III, which provides 85% additional battery life.

In December 2012, we launched the EnerPlex Kickr™ and EnerPlex Jumpr™ product series. The Kickr IV was an extremely portable, compact and durable solar charging device, approximately seven inches by seven inches when folded, and weighs less than half a pound. The Kickr IV provides 6.5 watts of regulated power that can help charge phones, digital cameras, and other small USB enabled devices. The Kickr IV is ideal for outdoor activities such as camping, hiking and mountain climbing as well as daily city use. To complement the Kickr IV, we also released the Jumpr series of portable power banks in December of 2012. The Jumpr series provides a compact power storage solution for those who need to recharge their portable electronics while on the go.

During 2013, the EnerPlex brand rapidly expanded with the addition of two new product series as well as over fifteen new products. In 2013, we introduced further additions to the Jumpr line of portable power banks; releasing the Jumpr Mini and Jumpr Stack in August and the Jumpr Max in September. The latest additions to the Kickr line of portable solar chargers, the Kickr I and Kickr II, were introduced in August at the Outdoor Retailer show. In October 2013, we released our first series of solar integrated backpacks, the EnerPlex Packr™. The Packr is a functional backpack ideal for charging mobile electronic devices while on the go. Also, in October of 2013, we introduced the Surfr battery and solar case for the Samsung Galaxy S® 4, and in December 2013, we introduced the Surfr battery and solar case for Apple's iPhone® 5. To complement our flagship product lines, we added an assortment of accessories, all of which can be integrated into the EnerPlex ecosystem of products; the LED wand, which can be easily plugged into a Jumpr power bank to provide hours of light, or the Travel Adaptor, which enables consumers to charge up their Jumpr power banks from a traditional outlet anywhere in the world.

Beginning in 2013, we aggressively pursued new distribution channels for the EnerPlex brand; these activities led to placement in a variety of high-traffic ecommerce venues such as www.amazon.com, www.walmart.com, www.brookstone.com, www.newegg.com, as well as many others including our own e-commerce platform at www.goenerplex.com. The April 2013 placement of EnerPlex products at Fry's Electronics, a US West Coast consumer electronics retailer, represented the company's first domestic retail presence; EnerPlex products were carried in all of Fry's 34 superstores across 9 states.

Throughout 2014, EnerPlex released multiple additions to the Jumpr line of products: including the Jumpr Stack 3, 6 and 9; innovative batteries equipped with tethered micro-USB and Apple Lightning cables with a revolutionary Stack and Charge design, enabling batteries to be charged simultaneously when they are placed on top of one another. Also released in 2014 were the Jumpr Slate series, products which push the boundaries of how thin batteries can be; the Jumpr Slate 10k, at less than 7mm thick was the thinnest lithium polymer battery available when it was released. The Jumpr Slate 5k and 5k Lightning each come with a tethered micro-USB and Lightning cable respectively; freeing consumers from worrying about toting extra cables with them while on the move.

At Outdoor Retailer 2014, EnerPlex debuted the Generatr Series. The Generatr 1200 and Generatr 100 are lithium-ion based, large format batteries. Lighter and smaller than competitors, the Generatr Series are targeted for consumers who require high-capacity, high-output batteries which remain ultra-portable. Also debuted at Outdoor Retailer was the Commandr 20, a high output solar charger designed specifically to integrate with and charge the Generatr series, allowing consumers to stay out longer without needing to charge their Generatr batteries from a traditional power source. In August 2014, the Kickr II+ and IV+ were also announced, these products represent another evolution in the EnerPlex line of solar products; integrated with a 500mAh battery the Kickr II+ and IV+ are able to provide a constant flow of power even when there are intermittent disruptions in sunlight.

During 2015, we reached an agreement with EVINE Live, one of the premier home shopping networks with TV programming that reaches over 87 million US homes to begin selling EnerPlex products during their broadcasts. EnerPlex launched the Generatr S100 and select other products exclusively with EVINE, EnerPlex also launched the Generatr 1200 launched exclusively with EVINE for a limited period. Also during 2015, EnerPlex expanded its relationship with The Cellular Connection to include over 450 Verizon Wireless Premium Retail Stores; launched its products with two world recognized retailers; The Sports Authority and Cabela's; and launched its products with GovX; the premier online shopping destination for Military, Law Enforcement and Government agencies. Internationally, EnerPlex products became available in the United Kingdom via the brand's launch with 172 Maplin's stores throughout the country.

In 2016, EnerPlex launched the new emergency sales vertical, partnering with Emergency Preparedness eCommerce leader, Emergency Essentials, and we announced new breakthroughs in the Company's line of high-voltage solar products, designed specifically for high-altitude and space markets. Also during the first quarter of 2016, the Company announced the launch of select products on the GSA Advantage website; allowing Federal employees, including members of all branches of the US Military, to directly purchase Ascent and EnerPlex products including: the MilPak E, Commandr 20, Kickr 4 and WaveSol™ solar modules.

In January 2017, Ascent was awarded a contract to supply high-voltage SuperLight thin-film CIGS PV blankets. These 50W, fully laminated, flexible blankets were manufactured using a new process that was optimized for high performance in near-space conditions at elevated temperatures, and are custom designed for easy modular integration into series and parallel configurations to achieve the desired voltage and current required for such application.

In February 2017 Ascent announced the discontinuation of our EnerPlex consumer business by disposing of the EnerPlex brand, and related intellectual properties and trademarks, to our battery product supplier, Sun Pleasure Co. Limited ("SPCL"). This transaction was completed in an effort to better allocate our resources and to continue to focus on our core strength in the high-value specialty PV market. Following the transfer, Ascent will no longer be producing or selling Enerplex-branded consumer products. Ascent will focus on its photovoltaic business and will supply solar PV products to SPCL, supporting the continuous growth of EnerPlex with Ascent's proprietary and award-winning thin-film solar technologies and products.

During the third quarter of 2017, Ascent Solar was selected by Energizer Solar Inc. to develop and supply solar panels for their PowerKeep line of solar products, and in November 2017, Ascent introduced the next generation of our USB-based portable power systems with the XD™ series. The first product introduced was the XD-12 which, like previous products, is a folding, lightweight, easily stowable, PV system with USB power regulation. Unique to this generation of PV portable power is more PV power (12 Watts) and a 2.0 Amp smart USB output to enable the XD-12 to charge most smartphones, tablets, and USB-enabled devices as fast as a wall outlet. The enhanced smart USB circuit works with the device to be charged so that the device can determine the maximum power it is able to receive from the XD-12 and ensures the best possible charging performance directly from the sun.

Also, in 2017, for a space customer, Ascent manufactured a new micro-module, approximately 12.8mm x 50mm (0.5in x 2.0in) in size that is ideal for both laboratory-scale environmental testing, and for subsequent integration into flight experiments.

In February 2018, the Company introduced the second product in our XD series. Delivering up to 48 Watts of solar power, the durable and compact Ascent XD-48 Solar Charger is the ideal solution for charging many portable electronics and off-grid power systems. The XD-48's versatility allows it to charge both military and consumer electronics directly from the sun wherever needed. Like the XD-12, the XD-48 has a compact and portable design, and its rugged, weather-resistant construction withstands shocks, drops, damage and even minor punctures to power through the harshest conditions.

In March 2018, Ascent successfully shipped to a European based customer for a lighter-than-air, helium-filled airship project based on our newly developed ultra-light modules with substrate material than half of the thickness of our standard modules. In 2019, Ascent completed a repeat order from the same customer who had since established its airship development operation in the US. In 2020, Ascent received a third and enlarged order from the same customer and is scheduled to complete the order in January 2021.

We continue to design and manufacture PV integrated portable power applications for commercial and military users. Due to the high durability enabled by the monolithic integration employed by our technology, the capability to customize modules into different form factors and the industry leading light weight and flexibility provided by our modules, we believe that the potential applications for our products are extensive.

Commercialization and Manufacturing Strategy

We manufacture our products by affixing a thin CIGS layer to a flexible, plastic substrate using a large format, roll-to-roll process that permits us to fabricate our flexible PV modules in an integrated sequential operation. We use proprietary monolithic integration techniques which enable us to form complete PV modules with little to no costly back end assembly of inter cell connections. Traditional PV manufacturers assemble PV modules by bonding or soldering discrete PV cells together. This manufacturing step typically increases manufacturing costs and at times proves detrimental to the overall yield and reliability of the finished product. By reducing or eliminating this added step using our proprietary monolithic integration techniques, we believe we can achieve cost savings in, and increase the reliability of, our PV modules. All tooling necessary for us to meet our near-term production requirements is installed in our Thornton, Colorado plant. In 2012, we further revised our strategy to focus on applications for emerging and high-value specialty PV markets, including off grid, aerospace, military and defense and consumer-oriented products.

We plan to continue the development of our current PV technology to increase module efficiency, improve our manufacturing tooling and process capabilities and reduce manufacturing costs. We also plan to continue to take advantage of research and development contracts to fund a portion of this development.

Advantages of CIGS on a Flexible Plastic Substrate

Thin film PV solutions differ based on the type of semiconductor material chosen to act as a sunlight absorbing layer, and also on the type of substrate on which the sunlight absorbing layer is affixed. To the best of our knowledge, we believe we are the only company in the world currently focused on commercial scale production of PV modules using CIGS on a flexible, plastic substrate with monolithic integration. We utilize CIGS as a semiconductor material because, at the laboratory level, it has a higher demonstrated cell conversion efficiency than amorphous silicon ("a-Si") and cadmium telluride ("CdTe"). We also believe CIGS offers other compelling advantages over both a-Si and CdTe, including:

- *CIGS versus a-Si:* Although a-Si, like CIGS, can be deposited on a flexible substrate, its conversion efficiency, which already is generally much lower than that of CIGS, measurably degrades when it is exposed to ultraviolet light, including natural sunlight. To mitigate such degradation, manufacturers of a-Si solar cells are required to implement measures that add cost and complexity to their manufacturing processes.

- *CIGS versus CdTe:* Although CdTe modules have achieved conversion efficiencies that are generally comparable to CIGS in production, we believe CdTe has never been successfully applied to a flexible substrate on a commercial scale. We believe the use of CdTe on a rigid, transparent substrate, such as glass, makes CdTe unsuitable for a number of the applications. We also believe CIGS can achieve higher conversion efficiencies than CdTe in production.

Our choice of substrate material further differentiates us from other thin film PV manufacturers. We believe the use of a flexible, lightweight, insulating substrate that is easier to install provides clear advantages for our target markets, especially where rigid substrates are unsuitable. We also believe our use of a flexible, plastic substrate provides us significant cost advantages because it enables us to employ monolithic integration techniques on larger components, which we believe are unavailable to manufacturers who use flexible, metal substrates. Accordingly, we are able to significantly reduce part count, thereby reducing the need for costly back end assembly of inter cell connections. As the only company, to our knowledge, focused on the commercial production of PV modules using CIGS on a flexible, plastic substrate with monolithic integration, we believe we have the opportunity to address the consumer electronics, defense, aerospace, transportation, off grid, portable power and other weight-sensitive markets with transformational high quality, value added product applications. It is these same unique features and our overall manufacturing process that enables us to produce consumer products that enables our consumer products to be extremely robust, light and flexible.

Competitive Strengths

We believe we possess a number of competitive strengths that provide us with an advantage over our competitors.

- ***We are a pioneer in CIGS technology with a proprietary, flexible, lightweight, high efficiency PV thin film product that positions us to penetrate a wide range of attractive high value added markets such as consumer products, off grid, portable power, transportation, defense, aerial, and other markets.*** By applying CIGS to a flexible plastic substrate, we have developed a PV module that is efficient, lightweight and flexible; with the highest power-to-weight ratio in at-scale commercially available solar. The market for electronic components, such as electronic packages, casings and accessories, as well as defense portable power systems, transportation integrated applications and space and near-space solar power application solutions represent a significant premium market for the company. Relative to our thin film competitors, we believe our advantage in thin film CIGS on plastic technology provides us with a superior product offering for these strategic market segments.

- ***We have the ability to manufacture PV modules for different markets and for customized applications without altering our production processes.*** Our ability to produce PV modules in customized shapes and sizes, or in a variety of shapes and sizes simultaneously, without interrupting production flow, provides us with flexibility in addressing target markets and product applications, and allows us to respond quickly to changing market conditions. Many of our competitors are limited by their technology and/or their manufacturing processes to a more restricted set of product opportunities.

- ***Our integrated, roll-to-roll manufacturing process and proprietary monolithic integration techniques provide us a potential cost advantage over our competitors.*** Historically, manufacturers have formed PV modules by manufacturing individual solar cells and then interconnecting them. Our large format, roll-to-roll manufacturing process allows for integrated continuous production. In addition, our proprietary monolithic integration techniques allow us to utilize laser patterning to create interconnects, thereby creating PV modules at the same time we create PV cells. In so doing, we are able to reduce or eliminate an entire back end processing step, saving time as well as labor and manufacturing costs relative to our competitors.

- ***Our lightweight, powerful, and durable solar panels provide a performance advantage over our competitors.*** For consumer applications where a premium is placed on the weight and profile of the product, our ability to integrate our PV modules into portable packages and cases offers the customer a lightweight and durable solution for all their portable electronics.

- ***Our proven research and development capabilities position us to continue the development of next generation PV modules and technologies.*** Our ability to produce CIGS based PV modules on a flexible plastic substrate is the result of a concerted research and development effort that began more than twenty years ago. We continue to pursue research and development in an effort to drive efficiency improvements in our current PV modules and to work toward next generation technologies and additional applications.

- ***Our manufacturing process can be differentiated into two distinct functions; a front-end module manufacturing process and a back-end packaging process.*** Our ability to produce finished unpackaged rolls of CIGS material for shipment worldwide to customers for encapsulation and integration into various products enhances our ability to work with partners internationally and domestically.

Markets and Marketing Strategy

In 2012, we pivoted our strategic focus away from large scale utility projects and rooftop applications to consumer products and high-value specialty solar markets. This new strategy enables us to fully leverage the unique advantages of our technology including flexibility, durability and attractive power to weight and power to area performance. It further enables us to offer unique, differentiated solutions in large markets with less competition, and more attractive pricing. In the second half of 2012, we launched our EnerPlex line of personal power, portable solar solutions and accessories. This represented a significant paradigm shift for us and moved us into the realm of supplying complete consumer product solutions as opposed to strictly commercial solar modules. We also remain focused on specialty solar applications which can fully leverage the unique properties of our award-winning CIGS technology. These include aerospace, defense, emergency management and consumer/OEM applications.

In February 2017 Ascent announced the discontinuation of our EnerPlex consumer business by disposing of the EnerPlex brand, and related intellectual properties and trademarks, to our battery product supplier, in an effort to better allocate our resources and to continue to focus on our core strength in the high-value specialty PV market. Ascent no longer produces or sells Enerplex-branded consumer products and we are instead focused on our photovoltaic business.

Ascent's strategic marketing efforts going forward will be focused on commercializing our proprietary solar technology in three highest-value PV verticals:

I. Aerospace: Space, Near-space and Fixed Wing UAV
II. Public Sector: Defense and Emergency Management

III. Commercial Off-grid and Portable Power

The value proposition of Ascent's proprietary solar technology not only aligns with the needs of customers in these verticals, but also overcomes many of the obstacles other solar technologies face in these unique markets. Ascent has the capability to design and develop finished products for end users in these areas as well as collaborate with strategic partners to design and develop custom integrated solutions for products like airships and fixed-wing UAVs. Ascent sees significant overlap in the needs of end users across some of these verticals and can achieve economies of scale in sourcing, development, and production in commercializing products for these customers.

The integration of Ascent's solar modules into space, near space, and aeronautic vehicles with ultra-lightweight and flexible solar modules is an important market opportunity for the Company. Customers in this market have historically required a high level of durability, high voltage and conversion efficiency from solar module suppliers, and we believe our products are well suited to compete in this premium market. In May 2014, together with our partners, Silent Falcon UAS Technologies and Bye Aerospace, we announced the successful first flight of a production version of the Silent Falcon™ Unmanned Aircraft Systems, powered by Ascent's ultra-lightweight, flexible PV modules. In July 2014, our ultra-lightweight, flexible PV modules were selected by Vanguard Space Technologies for their NASA Small Business Innovative Research program. The NASA program is intended to develop an economical, lightweight alternative to existing and emerging high-cost solar arrays for high-power space applications. We expect opportunities in this segment to develop rapidly due to customers' extensive development, testing and evaluation processes.

In March 2016, the Company announced a major breakthrough of our high-voltage superlight modules, achieving a power-to-weight ratio of 1,700 watts per kilogram at AM0 environment. In December 2016, Ascent was selected by the Japan Aerospace Exploration Agency ("JAXA") as part of their next round of evaluations for providing solar technology for an upcoming mission to Jupiter, as well as to address additional missions. This decision followed an earlier round of investigation with promising results, during which the Company's flexible, monolithically integrated CIGS solar module was subjected to environmental extremes and continued to operate well. During the first phase of JAXA's evaluation, Ascent's PV was successfully tested below -146°C (-231°F) and up to +190°C (+374 °F), and to only 4% of the sunlight generally received in earth's orbit. In addition, JAXA has subjected Ascent's PV to radiation and mechanical testing.

In 2017 we continued to solidify our position in the space and near-space markets; these challenging requirements and environments allow for the full utilization of the unique nature and advantages of our lightweight, flexible monolithically integrated CIGS PV. Through continued work in the PV-powered drone field, Ascent made significant strides in providing PV power to high-altitude airships and next-generation space applications.

In January 2017, Ascent was awarded a contract to supply high-voltage SuperLight thin-film CIGS PV blankets. These 50W, fully laminated, flexible blankets were manufactured using a new process that was optimized for high performance in near-space conditions at elevated temperatures, and are custom designed for easy modular integration into series and parallel configurations to achieve the desired voltage and current required for such application.

In November 2017, Ascent fulfilled a third order from JAXA for custom PV products designed specifically for their upcoming solar sail deployment demonstration project. This project was comprised of small area test cells and large, 19.5cm x 30cm monolithically integrated modules, all on a very thin, 25-micron (0.001 inch) plastic substrate which is half the thickness of Ascent's production substrate for a standard product. In space, near-space, and drone applications, the PV substrate accounts for a significant portion of the product's overall mass; the PV construction on the new 25-micron substrates represents a major breakthrough for these markets. JAXA placed this order after achieving the desired experimental results from the previous shipments and subsequent electrical, mechanical and environmental testing. The 19.5cm x 30cm module is a custom design to match the anticipated deployment mechanism and PV layout for the final Jovian spacecraft.

Also in 2017, Ascent fulfilled a new order, with another repeat space customer, to manufacture a new micro-module, approximately 12.8mm x 50mm (0.5in x 2.0in) in size that is ideal for both laboratory-scale environmental testing, and for subsequent integration into flight experiments.

In 2015 Ascent Solar won its second R&D 100 Award, the 2015 award was given for the development of the MilPak platform, a military-grade solar power generation and storage unit. The MilPak platform is one of the most rugged, yet lightweight, power generation and storage solutions available, both attributes enabled by the use of Ascent's CIGS technology.

The military market has a unique set of requirements we believe are well suited to our products. When integrated with fabric to form re-deployable arrays, our highly efficient, rugged, lightweight modules may allow soldiers to minimize battery loads, reduce the use of conventional fuels, and increase safety through the streamlining of fuel transport operations, providing the front-line units with maximum resilience and helping to increase operational efficiency. We are also working to expand our foldable line of outdoor solar chargers, such as the XD-12 and the XD-48, which are well suited for the individual soldier or

for the bigger power needs of a platoon with the ability of several chargers to be strung together. Our modules can also provide a reliable source of renewable power in remote areas, regardless of local infrastructure. We will continue to reach the military market through partnerships with top systems providers, by providing Government Service Administration Letters of Supply, and through direct sales and other blanket purchase agreements with the government.

Transportation integrated PV, or integration of our flexible solar modules with vehicles such as commercial trucks, buses, trains and passenger cars, is another market segment that represents a significant opportunity. Due to their flexible form and durable, lightweight properties, our modules can be fitted to the exterior of various vehicles to provide supplemental power without significantly affecting the aerodynamics, weight or aesthetics of the vehicle. We are currently working with multiple integrators and OEMs to develop effective value-added solutions for this market.

During the third quarter of 2017, Ascent Solar demonstrated its breadth of capabilities at the US Special Operations Command ("SOCOM") exclusive Technical Experimentation ("TE") 17-3 Event in Washington, DC. SOCOM is tasked, by the Department of Defense ("DoD"), with providing Special Operations Forces ("SOF") with the latest war fighting technology available; in support of this effort, SOCOM sponsors an annual TE event. In July of 2017 SOCOM requested the participation of companies who have proficiency in the areas of Satellite Communication ("SATCOM") and Unattended Ground Sensors ("UGS") for a TE event. Over 30 companies were selected to participate, and Ascent Solar was one of only 2 companies selected to participate who didn't actually make SATCOM or UGS products. Ascent Solar was selected on the basis and recognition that one of the primary issues facing the DoD today is the ability to power all of their war fighting technology. Ascent's diverse line-up of rugged and lightweight portable solar products offers the potential for the DoD to generate unattended ongoing power, which could save lives and increase the efficiency of the war fighting effort. Ascent was honored to be chosen to participate, and the assessed score we received is indicative of a capability that has "high potential for SOF use with few limitations".

During the third quarter of 2018, Ascent Solar was once again selected to demonstrate its breadth of capabilities at the SOCOM exclusive TE 18-3 Event in Washington, DC. In July of 2018, SOCOM requested the participation of companies who have proficiency in the areas of Intelligence, Surveillance and Reconnaissance (ISR), Small Unmanned Aerial Systems (SUAS) and Mobility for the TE event. Over 50 companies were selected to participate, and Ascent Solar was one of only 2 companies selected for a second straight year.

We continue to supply our strategic partners with PV modules to support their development, testing and certification of new integrated PV products, including product testing by several branches of the U.S. military. We believe that our high-power density flexible solar modules enable new applications for solar power. By creating mutually beneficial partnerships and strategically penetrating the markets discussed above, we plan to transform the landscape of solar power generation with truly innovative end products.

Competition

We have pivoted our strategic focus away from large scale utility projects of the traditional solar markets. We believe our thin film, monolithically integrated CIGS technology enables us to deliver sleek, lightweight, rugged, high performance solutions to serve these markets as competitors from other thin film and c-Si companies emerge. The landscape of thin film manufacturers encompasses a broad mix of technology platforms at various stages of development and consists of a number of medium and small companies.

The market for traditional, grid connected PV products is dominated by large manufacturers of c-Si technology, although thin film technology on glass has begun to emerge among the major players. We anticipate that while these large manufacturers may continue to dominate the market with their silicon-based products, thin film manufacturers will likely capture an increasingly larger share of the market, as is evident from the success of First Solar (CdTe) and Solar Frontier (CIGS), both among the top 20 producers worldwide. In 2019, crystalline silicon PV technology represented over 90% of global market revenue and production, with the balance captured by thin film. Approximately half of thin film production is CdTe production, with the other half being split between CIGS and a-Si.

We believe that our modules offer unique advantages. Their flexibility, low areal density (mass per unit area), and high specific power (power per unit mass) enable use on weight-sensitive applications, such as portable power, conformal aircraft surfaces, high altitude long endurance (HALE) fixed wing and lighter than air (LTA) vehicles, and space applications that are unsuitable for glass-based modules. Innovative product design, customer focused development, and our rapid prototyping capability yield modules that could be integrated into virtually any product to create a source of renewable energy. Whether compared to glass based or other flexible modules, our products offer competitive advantages making them unique in comparison to competing products.

Research and Development and Intellectual Property

We intend to continue to invest in research and development in order to provide near term improvements to our manufacturing process and products, as well as to identify next generation technologies relevant to both our existing and potential new markets. During 2019 and 2018 we incurred approximately $1,310,948 and $2,794,641, respectively, in research and development costs, which include research and development incurred in relation to our government contracts, as well as manufacturing costs incurred while developing our product lines and manufacturing process.

Our technology was initially developed at ITN beginning in 1994. In early 2006, ITN assigned to us certain CIGS PV-specific technologies, and granted to us a perpetual, exclusive, royalty free, worldwide license to use these technologies in connection with the manufacture, development, marketing and commercialization of CIGS PV to produce solar power. In addition, certain of ITN's existing and future proprietary process and control technologies, although nonspecific to CIGS PV, were assigned to us. ITN retained the right to conduct research and development activities in connection with PV materials, and we agreed to grant a license back to ITN for improvements to the licensed technologies and intellectual property outside of the CIGS PV field.

We protect our intellectual property through a combination of trade secrets and patent protections. We own the following patents and published patent applications:

Issued Patents and Registrations

1. US Patent No. 8,426,725 entitled "Apparatus and Method for Hybrid Photovoltaic Device Having Multiple, Stacked, Heterogeneous, Semiconductor Junctions" (issued April 23, 2013)

2. US Patent No. 8,465,589 entitled "Machine and Process for Sequential Multi-Sublayer Deposition of Copper Indium Gallium Diselenide Compound Semiconductors" (issued June 18, 2013)

3. US Patent No. D697,502 entitled "Mobile Electronic Device Case" (issued January 14, 2014)

4. US Patent No. 8,648,253 entitled "Machine and Process for Continuous, Sequential, Deposition of Semiconductor Solar Absorbers Having Variable Semiconductor Composition Deposited in Multiple Sublayers" (issued February 11, 2014)

5. US Patent No. D781,228 entitled Pocket-Sized Photovoltaic Based Fully Integrated Portable Power System (issued March 14, 2017)

6. US Patent No. 9601650 entitled Machine and Process for Continuous, Sequential, Deposition of Semiconductor Solar Absorbers Having Variable Semiconductor Composition Deposited in Multiple Sublayers (issued March 21, 2017)

7. US Patent No. 9634175 entitled Systems and Methods for Thermally Managing High-Temperature Processes on Temperature Sensitive Substrates (issued April 25, 2017)

8. US Patent No. 9640706 entitled Hybrid Multi-Junction Photovoltaic Cells and Associated Methods (issued May 2, 2017)

9. US Patent No. 9640692 entitled Flexible Photovoltaic Array with Integrated Wiring and Control Circuitry, and Associated Methods (issued May 2, 2017)

10. US Patent No. 9653635 entitled Flexible High-Voltage Adaptable Current Photovoltaic Modules and Associated Methods (issued May 16, 2017)

11. US Patent No. 9780242 entitled "Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates" (issued October 3, 2017)

Published Patent Applications

1. "Flexible Photovoltaic Array with Integrated Wiring and Control Circuitry, and Associated Methods" (US 12/901,963) (filed October 11, 2010) (co-owned with PermaCity Corporation)

2. "Cd-Free, Oxide Buffer Layers for Thin Film CIGS Solar Cells by Chemical Solution Deposition Methods" (US 13/227,935) (filed September 8, 2011)

3. “Systems and Processes for Bifacial Collection and Tandem Junctions Using a Thin film Photovoltaic Device” (US 13/406,376) (filed February 27, 2012)

4. “Multilayer Thin Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates” (US 13/572,387) (filed August 10, 2012)

5. “Multilayer Thin Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates” (PCT/US2012/050398) (filed August 10, 2012)

6. “Multilayer Thin Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates” (CN 201280047345.1) (filed August 10, 2012)

7. “Apparatus and Method for Hybrid Photovoltaic Device Having Multiple, Stacked, Heterogeneous, Semiconductor Junctions” (EP 11804861.0) (filed December 13, 2011)

8. “Apparatus and Method for Hybrid Photovoltaic Device Having Multiple, Stacked, Heterogeneous, Semiconductor Junctions” (CN 201180067131.6) (filed December 13, 2011)

9. “Subtractive Hinge and Associated Methods (US 13/783,336) (filed March 3, 2013)

10. “Subtractive Hinge and Associated Methods (PCT/US 2013/28,929) (filed March 4, 2013)

11. “Subtractive Hinge and Associated Methods (CN 201380012566.X) (filed March 4, 2013)

12. “Subtractive Hinge and Associated Methods (EP 13758462.9) (filed March 4, 2013)

13. “System for Housing and Powering A Battery-Operated Device and Associated Methods” (US 13/802,713) (filed March 14, 2013)

14. “System for Housing and Powering A Battery-Operated Device and Associated Methods” (US 13/802,719) (filed March 14, 2013)

15. “System for Housing and Powering A Battery-Operated Device and Associated Methods” (PCT/US2013/34988) (filed April 2, 2013)

16. “Photovoltaic Assembly and Associated Methods” (US 14/038096) (filed September 26, 2013)

17. “Photovoltaic Assembly and Associated Methods” (PCT/US2013/62355) (filed September 27, 2013)

18. “Photovoltaic Assembly and Associated Methods” (CN 201380060351.5) (filed September 27, 2013)

19. “Photovoltaic Assembly and Associated Methods” (EP 13840976.8) (filed September 27, 2013)

20. “Flexible High-Voltage Adaptable Current Photovoltaic Modules and Associated Methods” (US 14/041,886) (filed September 30, 2013)

21. “Hybrid Multi-Junction Photovoltaic Cells and Associated Methods” (US 14/100,960) (filed December 9, 2013)

22. “System for Housing and Powering A Battery-Operated Device and Associated Methods” (PCT/US2013/74936) (filed December 13, 2013)

23. “Systems and Methods for Thermally Managing High-Temperature Processes on Temperature Sensitive Substrates” (US 14/150,376) (filed January 8, 2014)

24. “Systems and Methods for Thermally Managing High-Temperature Processes on Temperature Sensitive Substrates” (PCT/US2014/10867) (filed January 8, 2014)

25. “Systems and Methods for Thermally Managing High-Temperature Processes on Temperature Sensitive Substrates” (CN 201480004408.4) (filed January 8, 2014)

26. “Systems and Methods for Thermally Managing High-Temperature Processes on Temperature Sensitive Substrates” (EP 14738271.7) (filed January 8, 2014)

27. "Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates" (PCT/US15/20184) (filed March 12, 2015)

28. "Array of Monolithically Integrated Thin Film Photovoltaic Cells and Associated Methods" (14/252,485) (filed April 14, 2014)

29. "Subtractive Hinge and Associated Methods" (EP 13758462.9) (filed March 4, 2013)

30. "Photovoltaic Assembly and Associated Methods" (EP 13840976.8) (filed September 27, 2013)

31. "Systems and Methods for Thermally Managing High-Temperature Processes on Temperature Sensitive Substrates" (CN 201480004408.4) (filed January 9, 2014)

32. "Systems and Methods for Thermally Managing High-Temperature Processes on Temperature Sensitive Substrates" (EP 14738271.7) (filed January 9, 2014)

33. "Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates" (US 14/932,933) (filed November 4, 2015)

34. "Photovoltaic-Based Fully Integrated Portable Power Systems" (PCT/US16/12047) (filed January 4, 2016)

35. "Photovoltaic-Based Fully Integrated Portable Power System" (US 14/987,214) (filed January 4, 2016)

36. "Systems and Processes for Bifacial Collection and Tandem Junctions Using a Thin-Film Photovoltaic Device" (US 15/099,835) (filed April 15, 2016)

37. "Photovoltaic-Based Fully Integrated Portable Power Management and Networking System" (PCT/US16/25647) (filed April 1, 2016)

38. "Photovoltaic-Based Fully Integrated Portable Power Management and Networking System" (US 15/089,028) (filed April 1, 2016)

39. "Photovoltaic Device and Method of Manufacturing Same" (CN 201610416638.2) (filed December 13, 2011)

40. "Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates" (US 15/258,169) (filed September 7, 2016)

41. "Hybrid Multi-Junction Photovoltaic Cells and Associated Methods" (US 15/137,696) (filed April 25, 2016)

42. "Machine and Process for Continuous, Sequential, Deposition Of Semiconductor Solar Absorbers Having Variable Semiconductor Composition Deposited In Multiple Sublayers" (US 15/584,241) (filed May 2, 2017)

43. "Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates" (GB 12759843.1) (Filed August 10, 2012)

44. "Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates" (WO PCT/US16/58933) (Filed October 26, 2016)

45. "Subtractive Hinge and Associated Methods" (US 15/673,283) (Filed August 9, 2017)

Ascent Solar has trademark applications and registrations in the United States and worldwide for slogans and product family names such as WaveSol, MilPak, and Transforming Everyday Life.

Depending on country laws, the marks listed above may include the ™ or ® symbols.

Suppliers

We rely on several unaffiliated companies to supply certain raw materials used during the fabrication of our PV modules and PV integrated electronics. We acquire these materials on a purchase order basis and do not have long term purchase quantity commitments with the suppliers, although we may enter into such contracts in the future. We currently acquire all of our high temperature plastic from one supplier, although alternative suppliers of similar materials exist. We purchase component

molybdenum, copper, indium, gallium, selenium and indium tin oxides from a variety of suppliers. We also currently are in the process of identifying and negotiating arrangements with alternative suppliers of materials in the United States and Asia.

The manufacturing equipment and tools used in our production process have been purchased from various suppliers in Europe, the United States and Asia. Although we have had good relations with our existing equipment and tools suppliers, we monitor and explore opportunities for developing alternative sources to drive our manufacturing costs down.

Employees

As of December 31, 2019, we had 12 full-time and 9 part-time employees.

Company History

We were formed in October 2005 from the separation by ITN of its Advanced Photovoltaic Division and all of that division's key personnel and core technologies. ITN, a private company incorporated in 1994, is an incubator dedicated to the development of thin film, PV, battery, fuel cell and nanotechnologies. Through its work on research and development contracts for private and government entities, ITN developed proprietary processing and manufacturing know-how applicable to PV products generally, and to CIGS PV products in particular. Our company was established by ITN to commercialize its investment in CIGS PV technologies. In January 2006, ITN assigned to us all its CIGS PV technologies and trade secrets and granted to us a perpetual, exclusive, royalty free worldwide license to use certain of ITN's proprietary process, control and design technologies in the production of CIGS PV modules. Upon receipt of the necessary government approvals in January 2007, ITN assigned government funded research and development contracts to us and also transferred the key personnel working on the contracts to us.

Corporate Information

We were incorporated under the laws of Delaware in October 2005. Our principal business office is located at 12300 Grant Street, Thornton, Colorado 80241, and our telephone number is (720) 872-5000. Our website address is *www.AscentSolar.com*. Information contained on our website or any other website does not constitute, and should not be considered, part of this Annual Report.

Available Information

We file with the Securities and Exchange Commission ("SEC") our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and all amendments to those reports, proxy statements and registration statements. You may read and copy any material we file with the SEC at the SEC's Public Reference Room at 100 F Street, NE, Washington, D.C. 20549. You may also obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. In addition, the SEC maintains an internet site at http://www.sec.gov that contains reports, proxy and information statements, and other information regarding issuers, including us, that file electronically. We make available free of charge on, or through, our website at *www.ascentsolar.com* our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to these reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended ("Exchange Act") as soon as reasonably practicable after we file these materials with the SEC.

Item 1A. Risk Factors

The risks included here are not exhaustive or exclusive. Other sections of this Annual Report may include additional factors which could adversely affect our business, results of operations and financial performance. We operate in a very competitive and rapidly changing environment. New risk factors emerge from time to time, and it is not possible for management to predict all such risk factors, nor can it assess the impact of all such risk factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements. Given these risks and uncertainties, investors should not place undue reliance on forward-looking statements as a prediction of actual results.

Risks Relating to Our Business

We have a limited history of operations, have not generated significant revenue from operations and have had limited production of our products. We have a limited operating history and have generated limited revenue from operations. Currently we are producing products in quantities necessary to meet current demand. Under our current business plan, we expect losses to continue until annual revenues and gross margins reach a high enough level to cover operating expenses. Our ability to achieve our business, commercialization and expansion objectives will depend on a number of factors, including whether:

- We can generate customer acceptance of and demand for our products;
- We successfully ramp up commercial production on the equipment installed;
- Our products are successfully and timely certified for use in our target markets;
- We successfully operate production tools to achieve the efficiencies, throughput and yield necessary to reach our cost targets;
- The products we design are saleable at a price sufficient to generate profits;
- We raise sufficient capital to enable us to reach a level of sales sufficient to achieve profitability on terms favorable to us;
- We are able to successfully design, manufacture, market, distribute and sell our products;
- We effectively manage the planned ramp up of our operations;
- We successfully develop and maintain strategic relationships with key partners, including OEMs, system integrators and distributors, retailers and e-commerce companies, who deal directly with end users in our target markets;
- Our ability to maintain the listing of our common stock on the OTCBB Market;
- Our ability to achieve projected operational performance and cost metrics;
- Our ability to enter into commercially viable licensing, joint venture, or other commercial arrangements; and
- The availability of raw materials.

Each of these factors is critical to our success and accomplishing each of these tasks may take longer or cost more than expected or may never be accomplished. It also is likely that problems we cannot now anticipate will arise. If we cannot overcome these problems, our business, results of operations and financial condition could be materially and adversely affected.

We have to date incurred net losses and may be unable to generate sufficient sales in the future to become profitable. We incurred a net loss of $4,868,261 for the year ended December 31, 2019 and reported an accumulated deficit of $423,400,229 as of December 31, 2019. We expect to incur net losses in the near term. Our ability to achieve profitability depends on a number of factors, including market acceptance of our specialty PV products at competitive prices. If we are unable to raise additional capital and generate sufficient revenue to achieve profitability and positive cash flows, we may be unable to satisfy our commitments and may have to discontinue operations.

Our business is based on a new technology, and if our PV modules or processes fail to achieve the performance and cost metrics that we expect, then we may be unable to develop demand for our PV modules and generate sufficient revenue to support our operations. Our CIGS on flexible plastic substrate technology is a relatively new technology. Our business plan and strategies assume that we will be able to achieve certain milestones and metrics in terms of throughput, uniformity of cell efficiencies, yield, encapsulation, packaging, cost and other production parameters. We cannot assure you that our technology will prove to be commercially viable in accordance with our plan and strategies. Further, we or our strategic partners and licensees may experience operational problems with such technology after its commercial introduction that could delay or defeat the ability of such technology to generate revenue or operating profits. If we are unable to achieve our targets on time and within our planned budget, then we may not be able to develop adequate demand for our PV modules, and our business, results of operations and financial condition could be materially and adversely affected.

Our failure to further refine our technology and develop and introduce improved PV products could render our PV modules uncompetitive or obsolete and reduce our net sales and market share. Our success requires us to invest significant financial resources in research and development to keep pace with technological advances in the solar energy industry. However, research and development activities are inherently uncertain, and we could encounter practical difficulties in commercializing our research results. Our expenditures on research and development may not be sufficient to produce the desired technological advances, or they may not produce corresponding benefits. Our PV modules may be rendered obsolete by the technological advances of our competitors, which could harm our results of operations and adversely impact our net sales and market share.

Failure to expand our manufacturing capability successfully at our facilities would adversely impact our ability to sell our products into our target markets and would materially and adversely affect our business, results of operations and financial condition. Our growth plan calls for production and operation at our facility. Successful operations will require substantial engineering and manufacturing resources and are subject to significant risks, including risks of cost overruns, delays and other risks, such as geopolitical unrest that may cause us not to be able to successfully operate in other countries. Furthermore, we may never be able to operate our production processes in high volume or at the volumes projected, make planned process and equipment improvements, attain projected manufacturing yields or desired annual capacity, obtain timely delivery of components, or hire and train the additional employees and management needed to scale our operations. Failure to meet these objectives on time and within our planned budget could materially and adversely affect our business, results of operations and financial condition.

We may be unable to manage the expansion of our operations and strategic alliances effectively. We will need to significantly expand our operations and form beneficial strategic alliances in order to reduce manufacturing costs through economies of scale and partnerships, secure contracts of commercially material amounts with reputable customers and capture a meaningful share of our target markets. To manage the expansion of our operations and alliances, we will be required to improve our operational and financial systems, oversight, procedures and controls and expand, train and manage our growing employee base. Our management team will also be required to maintain and cultivate our relationships with partners, customers, suppliers and other third parties and attract new partners, customers and suppliers. In addition, our current and planned operations, personnel, facility size and configuration, systems and internal procedures and controls, even when augmented through strategic alliances, might be inadequate or insufficient to support our future growth. If we cannot manage our growth effectively, we may be unable to take advantage of market opportunities, execute our business strategies or respond to competitive pressures, resulting in a material and adverse effect to our business, results of operations and financial condition.

We depend on a limited number of third-party suppliers for key raw materials, and their failure to perform could cause manufacturing delays and impair our ability to deliver PV modules to customers in the required quality and quantity and at a price that is profitable to us. Our failure to obtain raw materials and components that meet our quality, quantity and cost requirements in a timely manner could interrupt or impair our ability to manufacture our products or increase our manufacturing cost. Most of our key raw materials are either sole sourced or sourced by a limited number of third-party suppliers. As a result, the failure of any of our suppliers to perform could disrupt our supply chain and impair our operations. Many of our suppliers are small companies that may be unable to supply our increasing demand for raw materials as we implement our planned expansion. We may be unable to identify new suppliers in a timely manner or on commercially reasonable terms. Raw materials from new suppliers may also be less suited for our technology and yield PV modules with lower conversion efficiencies, higher failure rates and higher rates of degradation than PV modules manufactured with the raw materials from our current suppliers.

Our continuing operations will require additional capital which we may not be able to obtain on favorable terms, if at all, or without dilution to our stockholders. Since inception, we have incurred significant losses. We expect to continue to incur net losses in the near term. For the year ended December 31, 2019, our cash used in operations was $2,715,418. At December 31, 2019, we had no cash on hand.

Although we have commenced production at our manufacturing facility, we do not expect that sales revenue and cash flows will be sufficient to support operations and cash requirements until we have fully implemented our new strategy of focusing on high value PV products. Product revenues did not result in a positive cash flow for the 2019 year or the 2020 year. The Company will need to raise additional capital in order to continue our current level of operations throughout 2021.

To the extent that we may need to raise additional capital in the future there is no assurance that we will be able to raise additional capital on acceptable terms or at all. If we raise additional funds through the issuance of equity or convertible debt securities, the percentage ownership of our existing stockholders could be significantly diluted, and these newly issued securities may have rights, preferences or privileges senior to those of existing stockholders. If we raise additional funds through

debt financing, which may involve restrictive covenants, our ability to operate our business may be restricted. If adequate funds are not available or are not available on acceptable terms, if and when needed, our ability to fund our operations, take advantage of unanticipated opportunities, develop or enhance our products, expand capacity or otherwise respond to competitive pressures could be significantly limited, and our business, results of operations and financial condition could be materially and adversely affected.

Our products may never gain sufficient market acceptance, in which case we would be unable to sell our products or achieve profitability. Demand for our products may never develop sufficiently, and our products may never gain market acceptance, if we fail to produce products that compare favorably against competing products on the basis of cost, quality, weight, efficiency and performance. Demand for our products also will depend on our ability to develop and maintain successful relationships with key partners, including distributors, retailers, OEMs, system integrators and value-added resellers. If our products fail to gain market acceptance as quickly as we envision or at all, our business, results of operations and financial condition could be materially and adversely affected.

We are targeting emerging markets for a significant portion of our planned product sales. These markets are new and may not develop as rapidly as we expect or may not develop at all. Our target markets include portable power, defense, transportation, space and near space markets. Although certain areas of these markets have started to develop, some of them are in their infancy. We believe these markets have significant long-term potential; however, some or all of these markets may not develop and emerge as we expect. If the markets do develop as expected, there may be other products that could provide a superior product or a comparable product at lower prices than our products. If these markets do not develop as we expect, or if competitors are better able to capitalize on these markets our revenues and product margins may be negatively affected.

Failure to consummate strategic relationships with key partners in our various target market segments, such as defense and portable power, transportation, space and near space, and the respective implementations of the right strategic partnerships to enter these various specified markets, could adversely affect our projected sales, growth and revenues. We intend to sell thin-film PV modules for use in portable power systems, defense and portable power systems, transportation, space and near space solar panel applications. Our marketing and distribution strategy is to form strategic relationships with distributors, value added resellers and e-commerce to provide a foothold in these target markets. If we are unable to successfully establish working relationships with such market participants or if, due to cost, technical or other factors, our products prove unsuitable for use in such applications; our projected revenues and operating results could be adversely affected.

If sufficient demand for our products does not develop or takes longer to develop than we anticipate, we may be unable to grow our business, generate sufficient revenue to attain profitability or continue operations. The solar energy industry is at a relatively early stage of development, and the extent to which PV modules, including our own, will be widely adopted is uncertain. While pure PV solutions is not our short-term primary market, if PV technology proves unsuitable for widespread adoption or if demand for PV modules fails to develop sufficiently, long term we may be unable to grow our business, generate sufficient sales to attain profitability or continue operations. Many factors, of which several are outside of our control, may affect the viability of widespread adoption of PV technology and demand for PV modules.

We face intense competition from other manufacturers of thin-film PV modules and other companies in the solar energy industry. The solar energy and renewable energy industries are both highly competitive and continually evolving as participants strive to distinguish themselves within their markets and compete with the larger electric power industry. We believe our main sources of competition are other thin film PV manufacturers and companies developing other solar solutions, such as solar thermal and concentrated PV technologies.

Many of our existing and potential competitors have substantially greater financial, technical, manufacturing and other resources than we do. A competitor’s greater size provides them with a competitive advantage because they often can realize economies of scale and purchase certain raw materials at lower prices. Many of our competitors also have greater brand name recognition, established distribution networks and large customer bases. In addition, many of our competitors have well-established relationships with our current and potential partners and distributors and have extensive knowledge of our target markets. As a result of their greater size, these competitors may be able to devote more resources to the research, development, promotion and sale of their products or respond more quickly to evolving industry standards and changes in market conditions than we can. Our failure to adapt to changing market conditions and to compete successfully with existing or future competitors could materially and adversely affect our business, results of operations and financial condition.

Problems with product quality or performance may cause us to incur warranty expenses, damage our market reputation and prevent us from maintaining or increasing our market share. If our products fail to perform as expected while under warranty, or if we are unable to support the warranties, sales of our products may be adversely affected or our costs may increase, and our business, results of operations and financial condition could be materially and adversely affected.

We may also be subject to warranty or product liability claims against us that are not covered by insurance or are in excess of our available insurance limits. In addition, quality issues can have various other ramifications, including delays in the recognition of revenue, loss of revenue, loss of future sales opportunities, increased costs associated with repairing or replacing products, and a negative impact on our goodwill and reputation. The possibility of future product failures could cause us to incur substantial expenses to repair or replace defective products. Furthermore, widespread product failures may damage our market reputation and reduce our market share causing sales to decline.

Currency translation risk may negatively affect our net sales, cost of equipment, cost of sales, gross margin or profitability and could result in exchange losses. Although our reporting currency is the U.S. dollar, we may conduct business and incur costs in the local currencies of other countries in which we operate, make sales or buy equipment or materials. As a result, we are subject to currency translation risk. Our future contracts and obligations may be exposed to fluctuations in currency exchange rates, and, as a result, our capital expenditures or other costs may exceed what we have budgeted. Further, changes in exchange rates between foreign currencies and the U.S. dollar could affect our net sales and cost of sales and could result in exchange losses. We cannot accurately predict future exchange rates or the overall impact of future exchange rate fluctuations on our business, results of operations and financial condition.

A significant increase in the price of our raw materials could lead to higher overall costs of production, which would negatively affect our planned product margins, or make our products uncompetitive in the PV market. Our raw materials include high temperature plastics and various metals. Significant increases in the costs of these raw materials may impact our ability to compete in our target markets at a price sufficient to produce a profit.

Our intellectual property rights or our means of enforcing those rights may be inadequate to protect our business, which may result in the unauthorized use of our products or reduced sales or otherwise reduce our ability to compete. Our business and competitive position depends upon our ability to protect our intellectual property rights and proprietary technology, including any PV modules that we develop. We attempt to protect our intellectual property rights, primarily in the United States, through a combination of patent, trade secret and other intellectual property laws, as well as licensing agreements and third-party nondisclosure and assignment agreements. Because of the differences in foreign patent and other laws concerning intellectual property rights, our intellectual property rights may not receive the same degree of protection in foreign countries as they would in the United States. Our failure to obtain or maintain adequate protection of our intellectual property rights, for any reason, could have a materially adverse effect on our business, results of operations and financial condition. Further, any patents issued in connection with our efforts to develop new technology for PV modules may not be broad enough to protect all of the potential uses of our technology.

We also rely on unpatented proprietary technology. It is possible others will independently develop the same or similar technology or otherwise obtain access to our unpatented technology. To protect our trade secrets and other proprietary information, we require our employees, consultants and advisors to execute proprietary information and invention assignment agreements when they begin working for us. We cannot assure these agreements will provide meaningful protection of our trade secrets, unauthorized use, misappropriation or disclosure of trade secrets, know how or other proprietary information. Despite our efforts to protect this information, unauthorized parties may attempt to obtain and use information that we regard as proprietary. If we are unable to maintain the proprietary nature of our technologies, we could be materially adversely affected.

In addition, when others control the prosecution, maintenance and enforcement of certain important intellectual property, such as technology licensed to us, the protection and enforcement of the intellectual property rights may be outside of our control. If the entity that controls intellectual property rights that are licensed to us does not adequately protect those rights, our rights may be impaired, which may impact our ability to develop, market and commercialize our products. Further, if we breach the terms of any license agreement pursuant to which a third party licenses us intellectual property rights, our rights under that license may be affected and we may not be able to continue to use the licensed intellectual property rights, which could adversely affect our ability to develop, market and commercialize our products.

If third parties claim we are infringing or misappropriating their intellectual property rights, we could be prohibited from selling our PV products, be required to obtain licenses from third parties or be forced to develop non-infringing alternatives, and we could be subject to substantial monetary damages and injunctive relief. The PV industry

is characterized by the existence of a large number of patents and frequent litigation based on allegations of patent infringement. We are aware of numerous issued patents and pending patent applications owned by third parties that may relate to current and future generations of solar energy. The owners of these patents may assert the manufacture, use or sale of any of our products infringes one or more claims of their patents. Moreover, because patent applications can take many years to issue, there may be currently pending applications, unknown to us, which may later result in issued patents that materially and adversely affect our business. Third parties could also assert claims against us that we have infringed or misappropriated their intellectual property rights. Whether or not such claims are valid, we cannot be certain we have not infringed the intellectual property rights of such third parties. Any infringement or misappropriation claim could result in significant costs or substantial damages to our business or an inability to manufacture, market or sell any of our PV modules found to infringe or misappropriate. Even if we were to prevail in any such action, the litigation could result in substantial cost and diversion of resources that could materially and adversely affect our business. The large number of patents, the rapid rate of new patent issuances, the complexities of the technology involved, and uncertainty of litigation increase the risk of business assets and management's attention being diverted to patent litigation. Even if obtaining a license were feasible, it could be costly and time consuming. We might be forced to obtain additional licenses from our existing licensors in the event the scope of the intellectual property we have licensed is too narrow to cover our activities, or in the event the licensor did not have sufficient rights to grant us the license(s) purportedly granted. Also, some of our licenses may restrict or limit our ability to grant sub-licenses and/or assign rights under the licenses to third parties, which may limit our ability to pursue business opportunities.

Our future success depends on retaining our Chief Executive Officer and existing management team and hiring and assimilating new key employees and our inability to attract or retain key personnel would materially harm our business and results of operations. Our success depends on the continuing efforts and abilities of our executive officers, including Mr. Victor Lee, our President and Chief Executive Officer, our other executive officers, and key technical personnel. Our future success also will depend on our ability to attract and retain highly skilled employees, including management, technical and sales personnel. The loss of any of our key personnel, the inability to attract, retain or assimilate key personnel in the future, or delays in hiring required personnel could materially harm our business, results of operations and financial condition.

Our PV modules contain limited amounts of cadmium sulfide and claims of human exposure or future regulations could have a material adverse effect on our business, results of operations and financial condition. Our PV modules contain limited amounts of cadmium sulfide, which is regulated as a hazardous material due to the adverse health effects that may arise from human exposure and is banned in certain countries. We cannot assure you that human or environmental exposure to cadmium sulfide used in our PV modules will not occur. Any such exposure could result in third party claims against us, damage to our reputation and heightened regulatory scrutiny of our PV modules. Future regulation relating to the use of cadmium in various products could force us to seek regulatory exemptions or impact the manufacture and sale of our PV modules and could require us to incur unforeseen environmental related costs. The occurrence of future events such as these could limit our ability to sell and distribute our PV modules, and could have a material adverse effect on our business, results of operations and financial condition.

Environmental obligations and liabilities could have a substantial negative impact on our financial condition, cash flows and profitability. We are subject to a variety of federal, state, local and foreign laws and regulations relating to the protection of the environment, including those governing the use, handling, generation, processing, storage, transportation and disposal of, or human exposure to, hazardous and toxic materials (such as the cadmium used in our products), the discharge of pollutants into the air and water, and occupational health and safety. We are also subject to environmental laws which allow regulatory authorities to compel, or seek reimbursement for, cleanup of environmental contamination at sites now or formerly owned or operated by us and at facilities where our waste is or has been disposed. We may incur significant costs and capital expenditures in complying with these laws and regulations. In addition, violations of, or liabilities under, environmental laws or permits may result in restrictions being imposed on our operating activities or in our being subjected to substantial fines, penalties, criminal proceedings, third party property damage or personal injury claims, cleanup costs or other costs. Also, future developments such as more aggressive enforcement policies, the implementation of new, more stringent laws and regulations, or the discovery of presently unknown environmental conditions or noncompliance may require expenditures that could have a material adverse effect on our business, results of operations and financial condition. Further, greenhouse gas emissions have increasingly become the subject of international, national, state and local attention. Although future regulations could potentially lead to an increased use of alternative energy, there can be no guarantee that such future regulations will encourage solar technology. Given our limited history of operations, it is difficult to predict future environmental expenses.

We currently anticipate having substantial international operations that will subject us to a number of risks, including potential unfavorable political, regulatory, labor and tax conditions in foreign countries. We expect to expand our operations abroad in the future and, as a result, we may be subject to the legal, political, social and regulatory requirements and economic conditions of foreign jurisdictions. Risks inherent to international operations, include, but are not limited to, the following:

- Difficulty in procuring supplies and supply contracts abroad;
- Difficulty in enforcing agreements in foreign legal systems;
- Foreign countries imposing additional withholding taxes or otherwise taxing our foreign income, imposing tariffs or adopting other restrictions on foreign trade and investment, including currency exchange controls;
- Inability to obtain, maintain or enforce intellectual property rights;
- Risk of nationalization;
- Changes in general economic and political conditions in the countries in which we may operate, including changes in the government incentives we might rely on;
- Unexpected adverse changes in foreign laws or regulatory requirements, including those with respect to environmental protection, export duties and quotas;
- Difficulty with staffing and managing widespread operations;
- Trade barriers such as export requirements, tariffs, taxes and other restrictions and expenses, which could increase the prices of our products and make us less competitive in some countries; and
- Difficulty of, and costs relating to, compliance with the different commercial and legal requirements of the international markets in which we plan to offer and sell our PV products.

Our business in foreign markets will require us to respond to rapid changes in market conditions in these countries. Our overall success as an international business depends, in part, on our ability to succeed in differing legal, regulatory, economic, social and political conditions. If we are not able to develop and implement policies and strategies that are effective in each location where we will do business, then our business, results of operations and financial condition could be materially and adversely affected.

Existing regulations and policies and changes to these regulations and policies may present technical, regulatory and economic barriers to the purchase and use of PV products, which may significantly reduce demand for our PV products. The market for electricity generation products is heavily influenced by foreign, U.S., state and local government regulations and policies concerning the electric utility industry, as well as policies promulgated by electric utilities. These regulations and policies often relate to electricity pricing and technical interconnection of customer owned electricity generation. In the United States and in a number of other countries, these regulations and policies have been modified in the past and may be modified again in the future. These regulations and policies could deter end user purchases of PV products and investment in the research and development of PV technology. For example, without a mandated regulatory exception for PV systems, utility customers are often charged interconnection or standby fees for putting distributed power generation on the electric utility grid. These fees could increase the cost to our end users of using PV systems and make them less desirable, thereby harming our business, prospects, results of operations and financial condition. In addition, electricity generated by PV systems mostly competes with expensive peak hour electricity, rather than the less expensive average price of electricity. Modifications to the peak hour pricing policies of utilities, such as to a flat rate, would require PV systems to achieve lower prices in order to compete with the price of electricity from other sources.

We anticipate that our PV modules and their use in installations will be subject to oversight and regulation in accordance with national and local ordinances relating to building codes, safety, environmental protection, utility interconnection and metering and related matters. It is difficult to track the requirements of individual states and design equipment to comply with the varying standards. Any new government regulations or utility policies pertaining to PV modules may result in significant additional expenses to us, our business partners and their customers and, as a result, could cause a significant reduction in demand for our PV modules.

We have identified material weaknesses in our internal control over financial reporting. If our remedial measures are insufficient to address the material weaknesses, or if additional material weaknesses or significant deficiencies in our internal control over financial reporting are discovered or occur in the future, our consolidated financial statements may contain material misstatements, which could adversely affect our stock price and could negatively impact our results of operations. At December 31, 2019, we concluded that there were material weaknesses in our internal control over financial reporting. A material weakness is a deficiency, or combination of deficiencies, in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of our annual or interim financial statements will not be prevented or detected on a timely basis. See Item 9A in Part II of this Annual Report on Form 10-K for details.

Risks Relating to our Securities and an Investment in our Common Stock

As a public company we are subject to complex legal and accounting requirements that require us to incur substantial expenses, and our financial controls and procedures may not be sufficient to ensure timely and reliable reporting of financial information, which, as a public company, could materially harm our stock price and listing on the OTCBB. As a public company, we are subject to numerous legal and accounting requirements that do not apply to private companies. The cost of compliance with many of these requirements is substantial, not only in absolute terms but, more importantly, in relation to the overall scope of the operations of a small company. Failure to comply with these requirements can have numerous adverse consequences including, but not limited to, our inability to file required periodic reports on a timely basis, loss of market confidence, delisting of our securities and/or governmental or private actions against us. We cannot assure you we will be able to comply with all of these requirements or the cost of such compliance will not prove to be a substantial competitive disadvantage vis-à-vis our privately held and larger public competitors.

The Sarbanes-Oxley Act of 2002 ("Sarbanes-Oxley") requires, among other things, that we maintain effective internal control over financial reporting and disclosure controls and procedures. In particular, we must perform system and process evaluation and testing of our internal control over financial reporting to allow management to report on the effectiveness of our internal control over financial reporting, as required by Section 404 of Sarbanes-Oxley. Our compliance with Section 404 of Sarbanes-Oxley will require we incur substantial accounting expense and expend significant management efforts. The effectiveness of our controls and procedures may, in the future, be limited by a variety of factors, including:

- Faulty human judgment and simple errors, omissions or mistakes;
- Fraudulent action of an individual or collusion of two or more people;
- Inappropriate management override of procedures; and
- The possibility that any enhancements to controls and procedures may still not be adequate to assure timely and accurate financial information.

If we are not able to comply with the requirements of Section 404 in a timely manner, or if we or our independent registered public accounting firm, identifies deficiencies in our internal control over financial reporting that are deemed to be material weaknesses, we may be subject to OTCBB delisting, investigations by the SEC and civil or criminal sanctions.

Our ability to successfully implement our business plan and comply with Section 404 requires us to be able to prepare timely and accurate financial statements. We expect we will need to continue to improve existing, and implement new operational, financial and accounting systems, procedures and controls to manage our business effectively.

Any delay in the implementation of, or disruption in the transition to, new or enhanced systems, procedures or controls may cause our operations to suffer, and we may be unable to conclude that our internal control over financial reporting is effective as required under Section 404 of Sarbanes-Oxley. If we are unable to complete the required Section 404 assessment as to the adequacy of our internal control over financial reporting, if we fail to maintain or implement adequate controls, our ability to obtain additional financing could be impaired. In addition, investors could lose confidence in the reliability of our internal control over financial reporting and in the accuracy of our periodic reports filed under the Exchange Act. A lack of investor confidence in the reliability and accuracy of our public reporting could cause our stock price to decline.

The price of our common stock may continue to be volatile. Our common stock is currently traded on the OTCBB Market. The trading price of our common stock from time to time has fluctuated widely and may be subject to similar volatility in the future. For example, during most of the calendar year ended December 31, 2019, our common stock traded below $0.01. The trading price of our common stock in the future may be affected by a number of factors, including events described in these “Risk Factors.” In recent years, broad stock market indices, in general, and smaller capitalization and PV companies, in particular, have experienced substantial price fluctuations. In a volatile market, we may experience wide fluctuations in the market price of our common stock. These fluctuations may have a negative effect on the market price of our common stock regardless of our operating performance. In the past, following periods of volatility in the market price of a company’s securities, securities class action litigation has often been instituted. A securities class action suit against us could result in substantial costs, potential liabilities and the diversion of management’s attention and resources and could have a material adverse effect on our financial condition.

Our stockholders may experience significant dilution as a result of shares of our common stock issued pursuant to our currently outstanding securities and existing agreements, and pursuant to new securities that we may issue in the future. We are likely to issue substantial amounts of additional common stock in connection with most of our outstanding convertible preferred stock and convertible notes. We may also issue additional common stock or securities convertible into or exchangeable or exercisable for common stock, in connection with future capital raising transactions.

Most of our outstanding convertible preferred stock and convertible notes contain variable pricing mechanisms. The number of shares that we will issue pursuant to the aforementioned financial instruments will fluctuate based on the price of our common stock. Depending on market liquidity at the time, sales of such shares into the market may cause the trading price of our common stock to fall.

The issuance of material amounts of common stock by us would cause our existing stockholders to experience significant dilution in their investment in our Company. Also, if we obtain additional financing involving the issuance of equity securities or securities convertible into equity securities, our existing stockholders’ investment would be further diluted. Such dilution could cause the market price of our common stock to decline, which could impair our ability to raise additional financing.

Sales of a significant number of shares of our common stock in the public markets or significant short sales of our stock, or the perception that such sales could occur, could depress the market price of our common stock and impair our ability to raise capital. Sales of a substantial number of shares of our common stock or other equity-related securities in the public markets could depress the market price of our common stock. If there are significant short sales of our stock, the price decline that could result from this activity may cause the share price to decline more so, which, in turn, may cause long holders of the stock to sell their shares, thereby contributing to sales of stock in the market. Such sales also may impair our ability to raise capital through the sale of additional equity securities in the future at a time and price that our management deems acceptable, if at all. In addition, a large number of our outstanding shares are not registered under the Securities Act. If and when these shares are registered or become eligible for sale to the public market, the market price of our common stock could also decline.

Our common stock has been delisted from the NASDAQ Capital Market and the OTCQB Venture Market. Our inability to maintain our prior listings on NASDAQ and OTCQB may limit the liquidity of our stock, increase its volatility and hinder our ability to raise capital. On February 25, 2016, our common stock was delisted from the NASDAQ Capital Market and began trading on the OTCQB Venture Market. On May 20, 2017 our common stock was delisted from the OTCQB Venture Market and began trading on the OTCBB.

Upon such delisting from NASDAQ, our common stock became subject to the regulations of the SEC relating to the market for penny stocks. A penny stock is any equity security not traded on a national securities exchange that has a market price of less than $5.00 per share. The regulations applicable to penny stocks may severely affect the market liquidity for our common stock and could limit the ability of shareholders to sell securities in the secondary market. Accordingly, investors in our common stock may find it more difficult to dispose of or obtain accurate quotations as to the market value of our common stock, and there can be no assurance that our common stock will be continue to be eligible for trading or quotation on the OTCBB or any other alternative exchanges or markets.

The delisting of our common stock from the NASDAQ Capital Market and the OTCQB Venture Market may adversely affect our ability to raise additional financing through public or private sales of equity securities, may significantly affect the ability of investors to trade our securities, and may negatively affect the value and liquidity of our common stock. Such delisting from the NASDAQ Capital Market and the OTCQB Venture Market may also have other negative results, including the potential loss of confidence by employees, the loss of institutional investor interest and fewer business development opportunities.

Some provisions of our charter documents and Delaware law may have anti-takeover effects that could discourage an acquisition of us by others, even if an acquisition would be beneficial to our stockholders, and may prevent attempts by our stockholders to replace or remove our current management. Provisions in our Amended and Restated Certificate

of Incorporation and Second Amended and Restated Bylaws, each as amended, as well as provisions of Delaware law, could make it more difficult for a third party to acquire us, or for a change in the composition of our Board of Directors (our "Board") or management to occur, even if doing so would benefit our stockholders. These provisions include:

- Authorizing the issuance of "blank check" preferred stock, the terms of which may be established and shares of which may be issued without stockholder approval;
- Dividing our Board into three classes;
- Limiting the removal of directors by the stockholders; and
- Limiting the ability of stockholders to call a special meeting of stockholders.

In addition, we are subject to Section 203 of the Delaware General Corporation Law, which generally prohibits a Delaware corporation from engaging in any of a broad range of business combinations with an interested stockholder for a period of three years following the date on which the stockholder became an interested stockholder, unless such transactions are approved by our Board. This provision could have the effect of delaying or preventing a change of control, whether or not it is desired by, or beneficial to, our stockholders.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

We currently lease an approximately 100,000 square foot manufacturing and office facility in Thornton, Colorado.

Item 3. Legal Proceedings

In May 2019, the Company's former law firm filed suit against the Company in District Court in Adams County Colorado in an effort to collect approximately $1.2 million of unpaid fees (and related interest charges). On September 11, 2020, the Company entered into a settlement agreement (the "Settlement Agreement") with its former law firm. Pursuant to the Settlement Agreement, the Company paid $120,000 on September 23, 2020 as the full and final settlement of all amounts owed between the parties. Following such payment, a satisfaction of an existing judgment in favor of such law firm was filed in Adams County Colorado.

On July 29, 2020, the Company's owned facility at 12300 Grant Street, Thornton, CO 80241 (the "Building") was foreclosed by the Building's first lien holder ("Mortgage Holder") and sold at public auction. The successful bidder for the Building was the Mortgage Holder, at the price of $7.193 million. As a result, the Company's obligations to Mortgage Holder and all of the Company's outstanding real property taxes on the Building were considered fully repaid.

Item 4. Mine Safety Disclosures

Not applicable.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Market Information

Our stock previously traded on the NASDAQ Capital Market. On February 23, 2016 the Company received notice from NASDAQ stating that NASDAQ had determined to delist the Company's common stock. On May 20, 2017 our common stock was delisted from the OTCQB Venture Market and began trading on the OTCBB. Our trading symbol is "ASTI." The following table sets forth the high and low-sales price information per share for our common stock for the last two completed fiscal years, as adjusted for reverse stock splits.

Price Range of Common Stock

	High	Low
Fiscal 2018		
First Quarter	$ 0.9000	$ 0.4000
Second Quarter	0.5000	0.2000
Third Quarter	0.3000	0.0465
Fourth Quarter	0.0570	0.0082
Fiscal 2019		
First Quarter	0.0170	0.0013
Second Quarter	0.0021	0.0010
Third Quarter	0.0010	0.0001
Fourth Quarter	0.0002	0.0001

Holders

As of December 31, 2019, the number of record holders of our common stock was 41. Because many of our shares of common stock are held by brokers and other institutions on behalf of stockholders, we are unable to estimate the total number of stockholders represented by these record holders.

Dividends

The holders of common stock are entitled to receive such dividends as may be declared by our Board of Directors. During the years ended December 31, 2019 and 2018, we did not pay any common stock dividends, and we do not expect to declare or pay any dividends in the foreseeable future. Payment of future dividends will be within the discretion of our Board of Directors and will depend on, among other factors, our retained earnings, capital requirements, and operating and financial condition.

Item 6. Selected Financial Data

Smaller reporting companies are not required to provide the information required by this Item.

Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations

The following discussion of our financial condition and results of operations should be read in conjunction with our audited financial statements and the notes to those financial statements appearing elsewhere in this Form 10-K. This discussion and analysis contain statements of a forward-looking nature relating to future events or our future financial performance. As a result of many factors, our actual results may differ materially from those anticipated in these forward-looking statements. These statements involve known and unknown risks, uncertainties and other factors that may cause our actual results, levels of activity, performance or achievements to be materially different from any future results, levels of activity, performance or achievements expressed or implied by these forward-looking statements.

Overview

We are a company formed to commercialize flexible PV modules using our proprietary technology. For the year ended December 31, 2019, we generated $638,380 of revenue. Product sales accounted for 100% of total revenue. As of December 31, 2019, we had an accumulated deficit of approximately $423,400,229.

In January 2017, Ascent was awarded a contract to supply high-voltage SuperLight thin-film CIGS PV blankets. These 50W, fully laminated, flexible blankets were manufactured using a new process that was optimized for high performance in near-space conditions at elevated temperatures, and are custom designed for easy modular integration into series and parallel configurations to achieve the desired voltage and current required for such application.

In February 2017 Ascent announced the discontinuation of our EnerPlex consumer business by disposing of the EnerPlex brand, and related intellectual properties and trademarks, to our battery product supplier, Sun Pleasure Co. Limited (“SPCL”). This transaction was completed in an effort to better allocate our resources and to continue to focus on our core strength in the high-value specialty PV market. Following the transfer, Ascent no longer produces or sells Enerplex-branded consumer products. In November 2017, Ascent introduced the next generation of our USB-based portable power systems with the XD™ series. The first product introduced was the XD-12 which, like previous products, is a folding, lightweight, easily stowable, PV system with USB power regulation. Unique to this generation of PV portable power is more PV power (12 Watts) and a 2.0 Amp smart USB output to enable the XD-12 to charge most smartphones, tablets, and USB-enabled devices as fast as a wall outlet. The enhanced smart USB circuit works with the device to be charged so that the device can determine the maximum power it is able to receive from the XD-12 and ensures the best possible charging performance directly from the sun.

Also, in 2017, for a space customer, Ascent manufactured a new micro-module, approximately 12.8mm x 50mm (0.5in x 2.0in) in size that is ideal for both laboratory-scale environmental testing, and for subsequent integration into flight experiments.

In February 2018, the Company introduced the second product in our XD series. Delivering up to 48 Watts of solar power, the durable and compact Ascent XD-48 Solar Charger is the ideal solution for charging many portable electronics and off-grid power systems. The XD-48’s versatility allows it to charge both military and consumer electronics directly from the sun wherever needed. Like the XD-12, the XD-48 has a compact and portable design, and its rugged, weather-resistant construction withstands shocks, drops, damage and even minor punctures to power through the harshest conditions.

In March 2018, Ascent successfully shipped to a European based customer for a lighter-than-air, helium-filled airship project based on our newly developed ultra-light modules with substrate material than half of the thickness of our standard modules. In 2019, Ascent completed a repeat order from the same customer who had since established its airship development operation in the US. In 2020, Ascent received a third and enlarged order from the same customer and is scheduled to complete the order in January 2021.

We continue to design and manufacture PV integrated portable power applications for commercial and military users. Due to the high durability enabled by the monolithic integration employed by our technology, the capability to customize modules into different form factors and the industry leading light weight and flexibility provided by our modules, we believe that the potential applications for our products are extensive.

Commercialization and Manufacturing Strategy

We manufacture our products by affixing a thin CIGS layer to a flexible, plastic substrate using a large format, roll-to-roll process that permits us to fabricate our flexible PV modules in an integrated sequential operation. We use proprietary monolithic integration techniques which enable us to form complete PV modules with little to no costly back end assembly of inter cell connections. Traditional PV manufacturers assemble PV modules by bonding or soldering discrete PV cells together. This

manufacturing step typically increases manufacturing costs and at times proves detrimental to the overall yield and reliability of the finished product. By reducing or eliminating this added step using our proprietary monolithic integration techniques, we believe we can achieve cost savings in, and increase the reliability of, our PV modules. All tooling necessary for us to meet our near-term production requirements is installed in our Thornton, Colorado plant. In 2012, we further revised our strategy to focus on applications for emerging and high-value specialty PV markets, including off grid, aerospace, military and defense and consumer-oriented products.

We plan to continue the development of our current PV technology to increase module efficiency, improve our manufacturing tooling and process capabilities and reduce manufacturing costs. We also plan to continue to take advantage of research and development contracts to fund a portion of this development.

Significant Trends, Uncertainties and Challenges

We believe the significant trends, uncertainties and challenges that directly or indirectly affect our financial performance and results of operations include:

- Our ability to generate customer acceptance of and demand for our products;
- Successful ramping up of commercial production on the equipment installed;
- Our products are successfully and timely certified for use in our target markets;
- Successful operating of production tools to achieve the efficiencies, throughput and yield necessary to reach our cost targets;
- The products we design are saleable at a price sufficient to generate profits;
- Our ability to raise sufficient capital to enable us to reach a level of sales sufficient to achieve profitability on terms favorable to us;
- Effective management of the planned ramp up of our domestic and international operations;
- Our ability to successfully develop and maintain strategic relationships with key partners, including OEMs, system integrators, distributors, retailers and e-commerce companies, who deal directly with end users in our target markets;
- Our ability to maintain the listing of our common stock on the OTCBB Market;
- Our ability to implement remediation measures to address material weaknesses in internal control;
- Our ability to achieve projected operational performance and cost metrics;
- Our ability to enter into commercially viable licensing, joint venture, or other commercial arrangements; and
- Availability of raw materials.

Basis of Presentation: The discussion and analysis of our financial condition and results of operations are based on our consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States (“US GAAP”). The preparation of these consolidated financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses, and related disclosure of contingent assets and liabilities. On an ongoing basis, we evaluate our estimates based on historical experience and on various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions. We have identified the policies below as critical to our business operations and to the understanding of our financial results:

Significant Accounting Policies

Inventories: All inventories are stated at the lower of cost or net realizable value, with cost determined using the weighted average method. Inventory balances are frequently evaluated to ensure they do not exceed net realizable value. The computation for net realizable value takes into account many factors, including expected demand, product life cycle and development plans, module efficiency, quality issues, obsolescence and others. Management's judgment is required to determine reserves for obsolete or excess inventory. As of December 31, 2019 and 2018, the Company had inventory reserve balances of $584,269 and $745,927, respectively. If actual demand and market conditions are less favorable than those estimated by management, additional inventory write downs may be required.

Impairment of Long-lived assets: We analyze our long-lived assets (property, plant and equipment) and definitive-lived intangible assets (patents) for impairment, both individually and as a group, whenever events or changes in circumstances indicate the carrying amount of the assets may not be recoverable. Events that might cause impairment would include significant current period operating or cash flow losses associated with the use of a long-lived asset or group of assets combined with a history of such losses, significant changes in the manner of use of assets and significant negative industry or economic trends. An undiscounted cash flow analysis is calculated to determine if an impairment exists. If an impairment is determined to exist, any related loss is calculated using the difference between the fair value and the carrying value of the assets. During the years ended December 31, 2019 and 2018, we did not incur impairments of our manufacturing facilities and equipment.

Convertible Preferred Stock: The Company evaluates its preferred stock instruments under FASB ASC 480, *"Distinguishing Liabilities from Equity"* to determine the classification, and thereby the accounting treatment, of the instruments. Please refer to Note 13 for further discussion on the classification of each instrument.

Derivatives: The Company evaluates its financial instruments under FASB ASC 815, *"Derivatives and Hedging"* to determine whether the instruments contain an embedded derivative. When an embedded derivative is present, the instrument is evaluated for a fair value adjustment upon issuance and at the end of every period. Any adjustments to fair value are treated as gains and losses in fair values of derivatives and are recorded on the Statement of Operations. Please refer to Notes 10 and 12 for further discussion on the embedded derivatives of each instrument.

Revenue Recognition:

Product revenue. We recognize revenue for module and other equipment sales at a point in time following the transfer of control of such products to the customer, which typically occurs upon shipment or delivery depending on the terms of the underlying contracts. For module and other equipment sales contracts that contain multiple performance obligations, we allocate the transaction price to each performance obligation identified in the contract based on relative standalone selling prices, or estimates of such prices, and recognize the related revenue as control of each individual product is transferred to the customer, in satisfaction of the corresponding performance obligations.

During the years ended December 31, 2019 and 2018, the company recognized product revenue of $638,380 and $813,512, respectively.

Government contract revenue. Revenue from government research and development contracts is generated under terms that are cost plus fee or firm fixed price. We generally recognize this revenue over time using cost-based input methods, which recognize revenue and gross profit as work is performed based on the relationship between actual costs incurred compared to the total estimated costs of the contract. In applying cost-based input methods of revenue recognition, we use the actual costs incurred relative to the total estimated costs to determine our progress towards contract completion and to calculate the corresponding amount of revenue to recognize.

Cost based input methods of revenue recognition are considered a faithful depiction of our efforts to satisfy long-term government research and development contracts and therefore reflect the performance obligations under such contracts. Costs incurred that do not contribute to satisfying our performance obligations are excluded from our input methods of revenue recognition as the amounts are not reflective of our transferring control under the contract. Costs incurred towards contract completion may include direct costs plus allowable indirect costs and an allocable portion of the fixed fee. If actual and estimated costs to complete a contract indicate a loss, provision is made currently for the loss anticipated on the contract.

Research, Development and Manufacturing Operations Costs: Research, development and manufacturing operations expenses were approximately $1,310,948 and $2,794,641 for the years ended December 31, 2019 and 2018, respectively. Research, development and manufacturing operations expenses include: 1) technology development costs, which include expenses incurred in researching new technology, improving existing technology and performing federal government research and development contracts, 2) product development costs, which include expenses incurred in developing new products and lowering product design costs, and 3) pre-production and production costs, which include engineering efforts to improve production processes, material yields and equipment utilization, and manufacturing efforts to produce saleable

product. Research, development and manufacturing operations costs are expensed as incurred, with the exception of costs related to inventoried raw materials, work-in-process and finished goods, which are expensed as Cost of revenue as products are sold.

Share-Based Compensation: We measure and recognize compensation expense for all share-based payment awards made to employees, officers, directors, and consultants based on estimated fair values. The value of the portion of the award that is ultimately expected to vest is recognized as expense over the requisite service period in our statements of operations included herein. Share-based compensation is based on awards ultimately expected to vest, reduced by estimated forfeitures. Forfeitures are estimated at the time of grant and revised, as necessary, in subsequent periods if actual forfeitures differ from those estimates. For purposes of determining estimated fair value of share-based payment awards on the date of grant, we use the Black-Scholes option-pricing model ("Black-Scholes Model") for option awards. The Black-Scholes Model requires the input of highly subjective assumptions. Because our employee stock options may have characteristics significantly different from those of traded options, and because changes in the subjective input assumptions can materially affect the fair value estimate, in management's opinion, the existing models may not provide a reliable single measure of the fair value of our employee stock options. Management will continue to assess the assumptions and methodologies used to calculate estimated fair value of share-based compensation. Circumstances may change and additional data may become available over time, which result in changes to these assumptions and methodologies, which could materially impact our fair value determination. We estimate the fair value of our restricted stock awards at our stock price on the grant date.

The accounting guidance for share-based compensation may be subject to further interpretation and refinement over time. There are significant differences among option valuation models, and this may result in a lack of comparability with other companies that use different models, methods and assumptions. If factors change and we employ different assumptions in the accounting for share-based compensation in future periods, or if we decide to use a different valuation model, the compensation expense we record in the future may differ significantly from what we have recorded in the current period and could materially affect our loss from operations, net loss and net loss per share.

Use of Estimates: The preparation of financial statements in conformity with U.S. generally accepted accounting principles ("GAAP") requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Recently Issued Accounting Standards

In February 2016, the FASB issued ASU No. 2016-02, Leases *(Topic 842)*. ASU 2016-02 requires lessees to recognize all leases, including operating leases, on the balance sheet as a lease asset or lease liability, unless the lease is a short-term lease. ASU 2016-02 also requires additional disclosures regarding leasing arrangements. ASU 2016-02 is effective for interim periods and fiscal years beginning after December 15, 2019, and early application is permitted. The implementation of ASU 2016-02 did not have a material effect on the Company's consolidated financial statements, as the Company was not a party to any leases.

In August 2018, the FASB issued ASU No. 2018-13, Fair *Value Measurement (Topic 820): Disclosure Framework-Changes to the Disclosure Requirements for Fair Value Measurement*, which modifies the disclosure requirements of fair value measurements. This standard is effective for the Company in the first quarter of 2020, and early adoption is permitted. The Company is currently evaluating the impact of the effect adoption of this standard will have on its consolidated financial statements.

In August 2020, the FASB issued ASU No. 2020-06, *Debt - Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging Contracts in Entity s Own Equity (Subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity s Own Equity*. ASU 2020-06 will simplify the accounting for convertible instruments by reducing the number of accounting models for convertible debt instruments and convertible preferred stock. Limiting the accounting models results in fewer embedded conversion features being separately recognized from the host contract as compared with current GAAP. Convertible instruments that continue to be subject to separation models are (1) those with embedded conversion features that are not clearly and closely related to the host contract, that meet the definition of a derivative, and that do not qualify for a scope exception from derivative accounting and (2) convertible debt instruments issued with substantial premiums for which the premiums are recorded as paid-in capital. ASU 2020-06 also amends the guidance for the derivatives scope exception for contracts in an entity's own equity to reduce form-over-substance-based accounting conclusions. ASU 2020-06 will be effective for public companies for fiscal years beginning after December 15, 2023, including interim periods within those fiscal years. Early adoption is permitted, but no earlier than fiscal years beginning after December 15,

2020, including interim periods within those fiscal years. Management has not yet evaluated the effect that the adoption of ASU 2020-06 will have on the Company's consolidated financial statement presentation or disclosures subsequent to its adoption.

Other new pronouncements issued but not effective as of December 31, 2019 are not expected to have a material impact on the Company's consolidated financial statements.

Results of Operations

Comparison of the Years Ended December 31, 2019 and 2018

Revenues. Our revenues were $638,380 for the year ended December 31, 2019 compared to $862,412 for the year ended December 31, 2018, a decrease of $224,032. The following factors contributed to this decrease:

1. Net product revenues were $638,380 for the year ended December 31, 2019 compared to $813,512 for the year ended December 31, 2018, a decrease of 22%. The decrease in product sales is the result of our limited operations during the year ended 2019.

2. Revenues generated from government research and development contracts were $48,900 during the year ended December 31, 2018, the Company did not have any revenues attributable to government research and development contracts during the year ended December 31, 2019.

Cost of revenues. Our Cost of revenues for the year ended December 31, 2019 was $490,755 compared to $1,015,796 for the year ended December 31, 2018, a decrease of 52%. The decrease in cost of revenues is mainly due to the decrease in materials and labor costs as a result of a decrease in production for the year ended December 31, 2019 compared to 2018. Cost of revenues for the year ended December 31, 2019 is comprised primarily of materials and, direct labor, and overhead.

Research, development and manufacturing operations. Research, development and manufacturing operations costs were $1,310,948 for the year ended December 31, 2019, compared to $2,794,641 for the year ended December 31, 2018, a decrease of 53%. Research, development and manufacturing operations costs include costs incurred for product development, pre-production and production activities in our manufacturing facility. Research, development and manufacturing operations costs also include costs related to technology development and governmental contracts.

Selling, general and administrative. Selling, general and administrative expenses were $1,846,944 for the year ended December 31, 2019, compared to $3,244,793 for the year ended December 31, 2018, a decrease of 43%.

Other Expense, net. Other expense was $1,615,213 for the year ended December 31, 2019, compared to $9,466,368 for the year ended December 31, 2018, a decrease of $83%.

Net Loss. Our Net Loss was $4,868,261 for the year ended December 31, 2019, compared to a Net Loss of $16,036,492 for the year ended December 31, 2018, an improvement of 70%.

The decrease in Net Loss for the year ended December 31, 2019 can be summarized in variances in significant account activity as follows:

	Decrease (Increase) to Net Loss For the Year Ended December, 2019 Compared to the Year Ended December 31, 2018
Revenues	(224,032)
Cost of Revenue	525,041
Research, development and manufacturing operations	1,483,693
Selling, general and administrative expenses	1,397,849
Depreciation and Amortization Expense	134,525
Other Income / Expense	
Other income	829,356
Interest Expense	(1,498,321)
Non-Cash Change in Fair Value of Derivatives and Gain/Loss on Extinguishment of Liabilities, net	8,520,120
Decrease (Increase) to Net Loss	11,168,231

Liquidity and Capital Resources

The Company has continued limited PV production at its manufacturing facility. The Company does not expect that sales revenue and cash flows will be sufficient to support operations and cash requirements until it has fully implemented its product strategy. During the year ended December 31, 2019 the Company used $2,715,418 in cash for operations.

Additional projected product revenues are not anticipated to result in a positive cash flow position for the years 2020 and 2021 overall and, as of December 31, 2019, the Company has negative working capital. As such, cash liquidity sufficient for the year ending December 31, 2019 will require additional financing.

The Company continues to accelerate sales and marketing efforts related to its military solar products and specialty PV application strategies through expansion of its sales and distribution channels. The Company has begun activities related to securing additional financing through strategic or financial investors, but there is no assurance the Company will be able to raise additional capital on acceptable terms or at all. If the Company's revenues do not increase rapidly, and/or additional financing is not obtained, the Company will be required to significantly curtail operations to reduce costs and/or sell assets. Such actions would likely have an adverse impact on the Company's future operations.

As a result of the Company’s recurring losses from operations, and the need for additional financing to fund its operating and capital requirements, there is uncertainty regarding the Company’s ability to maintain liquidity sufficient to operate its business effectively, which raises substantial doubt as to the Company’s ability to continue as a going concern. The Company has scaled down its operations, due to cash flow issues, and does not expect to ramp up until significant financing is obtained.

Management cannot provide any assurances that the Company will be successful in accomplishing any of its plans. These consolidated financial statements do not include any adjustments that might be necessary should the Company be unable to continue as a going concern.

Statements of Cash Flows Comparison of the Years Ended December 31, 2019 and 2018

For the year ended December 31, 2019, our cash used in operations was $2,715,418 compared to $4,015,846 for the year ended December 31, 2018, a decrease of $1,300,428. The decrease is primarily the result of reduced expenses from operations during the current year. For the year ended December 31, 2019, cash provided by investing activities was $827,491 compared to cash used in investing activities of $2,447 for the year ended December 31, 2018. This change was primarily the result of an increase in proceeds from the sale of assets. During the year ended December 31, 2019, negative operating cash flows of $2,715,418 were funded through $1,887,268 in debt issuances.

Off Balance Sheet Transactions

As of December 31, 2019, we did not have any off-balance sheet arrangements as defined in Item 303(a)(4)(ii) of Regulation S-K.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Foreign Currency Exchange Risk

We hold no significant funds and have no future obligations denominated in foreign currencies as of December 31, 2019.

Although our reporting currency is the U.S. Dollar, we may conduct business and incur costs in the local currencies of other countries in which we may operate, make sales and buy materials. As a result, we are subject to currency translation risk. Further, changes in exchange rates between foreign currencies and the U.S. Dollar could affect our future net sales and cost of sales and could result in exchange losses.

Interest Rate Risk

Our exposure to market risks for changes in interest rates relates primarily to our cash equivalents and investment portfolio. As of December 31, 2019, our cash equivalents consisted only of operating accounts held with financial institutions. From time to time, we hold restricted funds, money market funds, investments in U.S. government securities and high-quality corporate securities. The primary objective of our investment activities is to preserve principal and provide liquidity on demand, while at the same time maximizing the income we receive from our investments without significantly increasing risk. The direct risk to us associated with fluctuating interest rates is limited to our investment portfolio, and we do not believe a change in interest rates will have a significant impact on our financial position, results of operations, or cash flows.

Item 8. Financial Statements and Supplementary Data

The Financial Statements and Supplementary Data required by this item are included in Part IV, Item 15(a)(1) and are presented beginning on Page F-1.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures designed to ensure that information required to be disclosed in our reports filed or submitted under the Securities Exchange Act of 1934, as amended (the "Exchange Act") is recorded, processed, summarized and reported within the time periods specified in Securities and Exchange Commission rules and forms. Our disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed in our reports filed under the Exchange Act is accumulated and communicated to management as appropriate to allow timely decisions regarding required disclosures. Our management conducted an evaluation required by Rules 13a-15 and 15d-15 under the Exchange Act of the effectiveness of our disclosure controls and procedures as defined in Rules 13a-15 and 15d-15 under the Exchange Act as of December 31, 2019. Based on this evaluation, our management concluded the design and operation of our disclosure controls and procedures were not effective as of December 31, 2019.

Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. Our system of internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles ("GAAP") in the United States of America and includes those policies and procedures that:

- pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of our assets;
- provide reasonable assurance transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and our receipts and expenditures are being made only in accordance with authorizations of our management and directors; and
- provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on our financial statements.

Under the supervision of the Audit Committee of the Board of Directors and with the participation of our management, including our Chief Executive Officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting using the criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on this evaluation, our management concluded our internal control over financial reporting were not effective as of December 31, 2019. Our management reviewed the results of its assessment with the Audit Committee.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

A material weakness is a deficiency, or combination of deficiencies, in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of the Company's annual or interim financial statements will not be prevented or detected on a timely basis.

Material Weakness Identified in 2019

Based on our assessment and the criteria used, management concluded that our internal control over financial reporting as of December 31, 2019 and December 31, 2018 was not effective due to the material weaknesses described as follows:

- The Company was understaffed and did not have sufficiently trained resources with the technical expertise to ensure that all company transactions were accounted for in accordance with GAAP. This deficiency arose primarily from staff turnover and the inability of the Company to devote sufficient replacement resources in a timely manner, as a result of the Company's financial situation

As a consequence, the Company did not have effective process level control activities over the following:

- Accounting for the Company's inventory and cost of revenue was lacking for the preparation of the December 31, 2019 financial statements. Miscalculations in these areas could impact the Company's current assets, revenues, operating results, and cash flows.
- Accounting for the Company's debt and equity securities was lacking for preparation of the December 31, 2019 and December 31, 2018 financial statements. Miscalculations in this area could impact the Company's liability, equity, and other expenses.

The control deficiencies described above created a reasonable possibility that a material misstatement to the consolidated financial statements would not be prevented or detected on a timely basis for the fiscal years ended December 31, 2019 and 2018.

Remediation Plan for Material Weaknesses in Internal Control over Financial Reporting

The Company's financial challenges continued during most of the year ended December 31, 2020, however, as discussed in Note 19 – Subsequent Events, the Company received funding during the second half of 2020 and began to bring the Company

back into operating status. The Company plans to execute the following steps, going forward, to remediate the aforementioned material weaknesses in its internal control over financial reporting:

- During the fourth quarter of 2020, the Company hired a new Chief Financial Officer
- The company significantly reduced the complexity of the debt structure through consolidation and simplifying of terms thereby lowering the associated administration and cost burden.
- The Company plans to engage a resource, either as internal staff or an external contractor, with the technical expertise to track and report on inventory transactions and cost of revenue calculations.
- The Company will design and implement additional procedures in order to assure that the resources mentioned above and other audit/accounting personnel are more involved with the Company's inventory activities, cost of revenue allocations, and debt and equity securities to monitor and earlier identify accounting issues that may be raised by the Company's ongoing activities.

Changes in Internal Control Over Financial Reporting

Except for the identification and mitigation of the material weaknesses noted above, there were no other changes in internal control over financial reporting during the year ended December 31, 2019 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

EXECUTIVE OFFICERS AND DIRECTORS

Our executive officers, continuing directors and director nominees, their ages and positions with us as of January 29, 2021, are as follows:

Name	Age	Position
Victor Lee	53	President and Chief Executive Officer, Director
Michael Gilbreth	44	Chief Financial Officer
Amit Kumar, Ph.D.	56	Chairman of the Board, Director
David Peterson	51	Director
Kim Huntley	66	Director
Will Clarke	53	Director

Victor Lee (Lee Kong Hian) has been the President and Chief Executive Officer of Ascent Solar Technologies Inc. since February 1, 2012 and as a member of our Board since November 2011. Mr. Lee is the managing director of Tertius Financial Group Pte Ltd, a boutique corporate advisory and private investment firm he founded in February 2009. He brings more than 25 years of experience in strategic planning, sales & marketing, corporate finance, real estate finance and investment management, and corporate advisory services at leading worldwide financial institutions. Mr. Lee began his career at Citibank N.A., in 1993, handling small-and medium-sized corporate finance and progressed to a vice president position in the International Personal Banking Division. In 1999 he moved to Deutsche Bank AG as Vice President and in 2004 was promoted to managing director Singapore Market Head in the Private Wealth Management Division, where he was responsible for management of approximately $1 Billion in assets. From 2007 until 2009, he was with Morgan Stanley Private Wealth Management, most recently as executive director and head of Singapore/Malaysia markets. Mr. Lee holds a Bachelor's degree in Accounting from the University of Wisconsin and a Master's in Wealth Management from the Singapore Management University.

Michael Gilbreth has been Chief Financial Officer of Ascent Solar Technologies Inc. since October 2020. Mr. Gilbreth is a financial executive with more than 15 years of experience in accounting and business management, consumer packaged goods, e-commerce, and financial consulting. In April 2020, Mr. Gilbreth formed a financial consulting company, PVMG Advisors, Inc., which provides financial and business consulting services. While at PVMG, Mr. Gilbreth provided consulting services to Crowdex Investment, LLC in connection with the Company’s recent restructuring and recapitalization process. Previously, from 2015 to January 2020, Mr. Gilbreth was Vice President of Finance at Candy Club Holding Limited (ASX: CLB) headquartered in Los Angeles, California. Candy Club is a leading specialty market confectionery company which operates in the business-to-business (B2B) and business-to-customer (B2C) segments in the United States. In this lead finance role at Candy Club, Mr. Gilbreth supported the company’s capital raising activities, including a successful initial public offering on the Australian Stock Exchange (ASX) in February 2019. From 2013 to 2015, Mr. Gilbreth operated Gilbreth Consulting, which provides financial and operational management consulting services, and strategic and operational planning services. From 2010 to 2013, Mr. Gilbreth was VP/Finance at MediaTrust, a performance marketing company based in southern California. From 2005 to 2010, Mr. Gilbreth was a business manager at Duban Sattler and Associates LLP, a boutique tax accounting and business management firm based in southern California which represents high net worth individuals. Mr. Gilbreth holds a Bachelor’s degree in Business Administration from California State University, Chico. Mr. Gilbreth and David Peterson are cousins.

Amit Kumar, Ph.D. has served on our Board of Directors since June 2007 and as Chairman since January 2011. Dr. Kumar is currently Chairman, President and CEO of Anixa Biosciences (NASDAQ:ANIX), a publicly held biotechnology company. From December 2010 to June 2015, Dr. Kumar was President and CEO of Geo Fossil Fuels, a privately held energy company. From September 2001 until June 30, 2010, Dr. Kumar was President and CEO of CombiMatrix Corporation (NASDAQ: CBMX). Previously, Dr. Kumar was Vice President of Life Sciences of Acacia Research Corp (NASDAQ: ACTG). From January 1999 to February 2000, Dr. Kumar was the founding President and Chief Executive Officer of Signature BioSciences, Inc., a life science company developing technology for advanced research in genomics, proteomics and drug discovery. From January 1998 to December 1999, Dr. Kumar was an Entrepreneur in Residence with Oak Investment Partners, a venture capital firm. From October 1996 to January 1998, Dr. Kumar was a Senior Manager at IDEXX Laboratories, Inc., a biotechnology company. From October 1993 to September 1996, Dr. Kumar was Head of Research & Development for Idetek Corporation,

which was later acquired by IDEXX Laboratories, Inc. Dr. Kumar received his B.S. degree in chemistry from Occidental College. After joint studies at Stanford University and the California Institute of Technology, he received his Ph.D. in Chemistry from Caltech in 1991. He also completed a post-doctoral fellowship at Harvard University in 1993. Dr. Kumar has authored and co-authored over 40 peer-reviewed publications and holds a dozen patents. Dr. Kumar brings significant leadership experience as well as experience in photovoltaic research including work on energy conversion using cells made from silicon (single crystal, polycrystalline, and amorphous), gallium arsenide, indium phosphide, metal oxides and other materials. Dr. Kumar is a member of the Board of Directors of Actym Therapeutics, a private biotechnology company.

Kim J. Huntley has served on our Board of Directors since June 2010. Mr. Huntley served in the Defense Logistics Agency (DLA) of the U.S. Department of Defense (DOD) for more than 32 years in positions of increasing responsibility. Most recently, from July 2008 until his retirement in January 2010, Mr. Huntley served as Director of the Defense Energy Support Center (DESC) in Fort Belvoir, Virginia. The DESC operates as part of the DLA and is responsible for providing energy solutions to the DOD and federal civilian agencies. As Director of the DESC, Mr. Huntley was the principal executive officer in charge of approximately 1,100 employees worldwide and over $25 billion in annual appropriations involving energy infrastructure and products. From March 2006 and immediately prior to becoming Director of the DESC, Mr. Huntley served in leadership roles involving supply chain management, including Deputy Commander for the Defense Supply Center in Richmond, Virginia and Columbus, Ohio, and as Executive Director of Customer Support and Readiness. From December 2003 to March 2006, Mr. Huntley served as Chief of the Customer Support Office in Fort Belvoir, Virginia. Mr. Huntley chaired the Inter Agency Working Group for Alternative Fuels and Renewable Energy from January 2009 to January 2010. The Group included senior energy representatives from DOD, DOE, EPA, and other major Federal Agencies. Mr. Huntley holds a B.A. degree in Economics from Golden Gate University and attended post-graduate courses in economics at California State University, Hayward. Mr. Huntley brings extensive supply chain, budget and defense industry experience to our Board.

David Peterson has served on our Board of Directors since December 2020. Mr. Peterson has over 25 years of business management experience, including 8 years as a private equity investor, 5 years as a manager at an engineering consulting firm, and over 20 years of board experience. From April 2015 to present, Mr. Peterson has worked for EPD Consultants, Inc., a privately held engineering firm headquartered in Carson, California, where he serves as Senior Project Manager. From 2010 to 2015, Mr. Peterson was President and Co-Founder of Great Circle Industries, Inc., a water recycling company in southern California. His past experience includes being a board member at AIR-serv, LLC, a tire inflation vending machine manufacturer, where Mr. Peterson managed the acquisition process, including obtaining expansion of the company's credit facility, as that company completed 10 acquisitions and grew from $10 million of EBITDA to $20 million of EBITDA in the year prior to its sale for $151 million to WindPoint Partners. Mr. Peterson has an MBA degree from the Marshall School of Business at the University of Southern California, and a B.A. from the University of California, Santa Cruz. Mr. Peterson is currently the Manager of Crowdex Investment, LLC, a significant equity investor in the Company. Mr. Peterson and Michael Gilbreth are cousins.

Will Clarke has served on our Board of Directors since December 2020. Since 2020, Mr. Clarke has been the Founder and President of Clarke Growth and Sustainment Strategies, an advisory firm specializing in guiding startup and early stage companies' business expansion. From 2018 to 2020, Mr. Clarke was Head of Global Supply Chain Management and Technical Procurement for Atlas Airlines Worldwide Holdings, Inc. (NASDAQ: AAWW), a leading global provider of outsourced aircraft and aviation operating services headquartered in Purchase, NY. From 2015 to 2017, Mr. Clarke was Director of Procurement at Best Buy Co., Inc. (NYSE: BBY), a provider of technology products, services and solutions to its customers through over 1,400 retail stores, and also through its websites and mobile applications. Best Buy is headquartered in Richfield, MN and has operations in the United States, Canada and Mexico. Prior to launching his second career in 2015, Mr. Clarke served 25 years as an Officer in the U.S. Navy, where he completed 10 deployments in support of war and peacetime operations on two aircraft carriers, one submarine, one warship and one on land. Mr. Clarke served in a number of senior finance, supply chain, procurement and logistics assignments across East Africa, Asia/Pacific, and the United States while serving in the U.S. Navy, where he attained the rank of Captain (O6). Mr. Clarke earned a B.S. in Mathematics from the U.S. Naval Academy, an M.S. in Finance and Contracts Management from the Naval Postgraduate School and has completed the Executive Development Program at Wharton Business School and the Corporate Governance Program at Columbia Business School.

CORPORATE GOVERNANCE

Overview

Our Bylaws provide that the size of our Board of Directors is to be determined from time to time by resolution of the Board of Directors, but shall consist of at least two and no more than nine members. Our Board of Directors currently consists of five members. The Board has determined that the following directors are "independent" as required by the listing standards of the OTC Market and by our corporate governance guidelines: Dr. Kumar, Mr. Huntley and Mr. Clarke.

Our Certificate of Incorporation provides that the Board of Directors will be divided into three classes. Our Class 1 director is Dr. Amit Kumar. Our Class 2 directors are Kim J. Huntley and Will Clarke. Our Class 3 directors are David Peterson and Victor Lee.

Board Leadership Structure and Role in Risk Oversight

We currently separate the roles of Chairman of the Board and Chief Executive Officer. We believe that Dr. Kumar possesses the strategic, technical and industry knowledge and expertise to serve as our Chairman. As President and Chief Executive Officer, Mr. Lee is responsible for day-to-day oversight of our operations and personnel. Notwithstanding the foregoing, our Board does not have a formal policy regarding separation of the Chairman and Chief Executive Officer roles, and the Board may in the future decide to implement such a policy if it deems it in the best interests of us and our stockholders. The Board does not have a lead independent director.

Risk is inherent with every business, and how well a business manages risk can ultimately determine its success. We face a number of risks, including credit risk, interest rate risk, liquidity risk, operational risk, strategic risk and reputation risk. Management is responsible for the day-to-day management of risks we face, while the Board, as a whole and through its committees, has responsibility for the oversight of risk management. In its risk oversight role, the Board of Directors has the responsibility to satisfy itself that the risk management processes designed and implemented by management are adequate and functioning as designed. To do this, the Chairman of the Board meets regularly with management to discuss strategy and the risks we face. In addition, the Audit Committee regularly monitors our enterprise risk, including financial risks, through reports from management. Senior management attends the Board meetings and is available to address any questions or concerns raised by the Board on risk management and any other matters. The Chairman of the Board and independent members of the Board work together to provide strong, independent oversight of our management and affairs through the Board's standing committees and, when necessary, executive sessions of the independent directors.

Committees of the Board of Directors

Our Board has three standing committees: an Audit Committee, a Compensation Committee, and a Nominating and Governance Committee. Each committee operates pursuant to a charter. The charters of the Audit Committee, the Compensation Committee, and the Nominating and Governance Committee can be found on our website www.ascentsolar.com.

Audit Committee. Our Audit Committee oversees our accounting and financial reporting processes, internal systems of accounting and financial controls, relationships with independent auditors, and audits of financial statements. Specific responsibilities include the following:

- selecting, hiring and terminating our independent auditors;
- evaluating the qualifications, independence and performance of our independent auditors;
- approving the audit and non-audit services to be performed by our independent auditors;
- reviewing the design, implementation, adequacy and effectiveness of our internal controls and critical accounting policies;
- reviewing and monitoring the enterprise risk management process;
- overseeing and monitoring the integrity of our financial statements and our compliance with legal and regulatory requirements as they relate to financial statements or accounting matters;
- reviewing, with management and our independent auditors, any earnings announcements and other public announcements regarding our results of operations; and
- preparing the report that the SEC requires in our annual proxy statement.

Our Audit Committee is comprised of Mr. Huntley, Dr. Kumar and Mr. Clarke. Mr. Huntley serves as Chairman of the Audit Committee. The Board has determined that all members of the Audit Committee are independent under the rules of the OTC Market, and that Mr. Huntley qualifies as an "audit committee financial expert," as defined by the rules of the SEC.

Compensation Committee. Our Compensation Committee assists our Board in determining the development plans and compensation of our officers, directors and employees. Specific responsibilities include the following:

- approving the compensation and benefits of our executive officers;
- reviewing the performance objectives and actual performance of our officers; and
- administering our stock option and other equity compensation plans.

The Compensation Committee reviews all components of compensation including base salary, bonus, equity compensation, benefits and other perquisites. In addition to reviewing competitive market values, the Compensation Committee also examines the total compensation mix, pay-for-performance relationship and how all elements, in the aggregate, comprise the executives' total compensation package. The CEO makes recommendations to the Compensation Committee from time to time regarding the appropriate mix and level of compensation for other officers. Those recommendations consider the objectives of our compensation philosophy and the range of compensation programs authorized by the Compensation Committee. The Compensation Committee may determine director compensation by reviewing peer group data. Although the Compensation Committee has the authority to retain outside third parties, it does not currently utilize any outside consultants. The Compensation Committee may delegate certain of its responsibilities, as it deems appropriate, to other committees or officers.

Our Compensation Committee is comprised of Mr. Clarke, Mr. Huntley and Dr. Kumar. Mr. Clarke serves as Chairman of the Compensation Committee.

Our Board has determined that all members of the Compensation Committee are independent under the rules of the OTC Market.

Nominating and Governance Committee. Our Nominating and Governance Committee assists our Board by identifying and recommending individuals qualified to become members of our Board, reviewing correspondence from our stockholders, and establishing, evaluating and overseeing our corporate governance guidelines. Specific responsibilities include the following:

- evaluating the composition, size and governance of our Board and its committees and making recommendations regarding future planning and the appointment of directors to our committees;
- establishing a policy for considering stockholder nominees for election to our Board; and
- evaluating and recommending candidates for election to our Board.

Our Nominating and Governance Committee is comprised of Dr. Kumar, Mr. Huntley, and Mr. Clarke. Dr. Kumar serves as Chairman of our Nominating and Governance Committee. Our Board has determined that all members of the Nominating and Governance Committee are independent under the rules of OTC Market.

When considering potential director candidates for nomination or election, the following characteristics are considered in accordance with our

Nominating and Governance Committee Charter:

- high standard of personal and professional ethics, integrity and values;
- training, experience and ability at making and overseeing policy in business, government and/or education sectors;
- willingness and ability to keep an open mind when considering matters affecting interests of us and our constituents;
- willingness and ability to devote the time and effort required to effectively fulfill the duties and responsibilities related to the Board and its committees;
- willingness and ability to serve on the Board for multiple terms, if nominated and elected, to enable development of a deeper understanding of our business affairs;

- willingness not to engage in activities or interests that may create a conflict of interest with a director's responsibilities and duties to us and our constituents; and
- willingness to act in the best interests of us and our constituents, and objectively assess Board, committee and management performances.

In addition, in order to maintain an effective mix of skills and backgrounds among the members of our Board, the following characteristics also may be considered when filling vacancies or identifying candidates:

- diversity (e.g., age, geography, professional, other);
- professional experience;
- industry knowledge (e.g., relevant industry or trade association participation);
- skills and expertise (e.g., accounting or financial);
- leadership qualities;
- public company board and committee experience;
- non-business-related activities and experience (e.g., academic, civic, public interest);
- continuity (including succession planning);
- size of the Board;
- number and type of committees, and committee sizes; and
- legal and other applicable requirements and recommendations, and other corporate governance-related guidance regarding Board and committee composition.

The Nominating and Governance Committee will consider candidates recommended by stockholders who follow the nomination procedures in our bylaws. The Nominating and Governance Committee does not have a formal policy with respect to diversity; however, as noted above, the Board and the Nominating and Governance Committee believe that it is essential that Board members represent diverse viewpoints**.**

Number of Meetings

The Board held a total of 3 meetings in 2019. Our Audit Committee held 2 meetings, our Compensation Committee held 0 meetings, and our Nominating and Governance Committee held 0 meetings in 2019. Each director attended at least 75% of the aggregate of the total number of meetings of the Board and the Board committees on which he served.

Board Member Attendance at Annual Stockholder Meetings

Although we do not have a formal policy regarding director attendance at annual stockholder meetings, directors are encouraged to attend these annual meetings absent extenuating circumstances. We did not hold our annual meeting during 2019.

Stockholder Nominations

In accordance with our Bylaws, a stockholder wishing to nominate a director for election at an annual or special meeting of stockholders must timely submit a written proposal of nomination to us at our executive offices. To be timely, a written proposal of nomination for an annual meeting of stockholders must be received at least 90 calendar days but no more than 120 calendar days before the first anniversary of the date on which we held our annual meeting of stockholders in the immediately preceding year; *provided*, *however*, that in the event that the date of the annual meeting is advanced or delayed more than 30 calendar days from the anniversary of the annual meeting of stockholders in the immediately preceding year, the written proposal must be received: (i) at least 90 calendar days but no more than 120 calendar days prior to the date of the annual meeting; or (ii) no more than 10 days after the date we first publicly announce the date of the annual meeting. A written proposal of nomination for a special meeting of stockholders must be received no earlier than 120 calendar days prior to the date of the special meeting nor any later than the later of: (i) 90 calendar days prior to the date of the special meeting; and (ii) 10 days after the date we first publicly announce the date of the special meeting.

Each written proposal for a nominee must contain: (i) the name, age, business address and telephone number, and residence address and telephone number of the nominee; (ii) the current principal occupation or employment of each nominee, and the principal occupation or employment of each nominee for the prior ten (10) years; (iii) a complete list of companies, whether publicly traded or privately held, on which the nominee serves (or, during any of the prior ten (10) years, has served) as a member of the board of directors; (iv) the number of shares of our common stock that are owned of record and beneficially by each nominee; (v) a statement whether the nominee, if elected, intends to tender, promptly following such person's failure to receive the required vote for election or reelection at the next meeting at which the nominee would face election or reelection, an irrevocable resignation effective upon acceptance of such resignation by the Board; (vi) a completed and signed questionnaire, representation and agreement relating to voting agreements or commitments to which the nominee is a party; (vii) other information concerning the nominee that would be required in a proxy statement soliciting the nominee's election; and (viii) information about, and representations from, the stockholder making the nomination.

A stockholder interested in submitting a nominee for election to the Board of Directors should refer to our Bylaws for additional requirements. Upon receipt of a written proposal of nomination meeting these requirements, the Nominating and Governance Committee of the Board will evaluate the nominee in accordance with its charter and the characteristics listed above.

Director Compensation

In 2019, our independent directors each agreed to serve without any cash or equity compensation (except for the compensation shown in the table below) until such time as the Company's financial and cash position improved.

The following Director Compensation Table summarizes the compensation of each of our non-employee directors for services rendered to us during the year ended December 31, 2019:

2019 Director Compensation Table

Name	Fees Earned or Paid in Cash ($)	Stock Awards ($)	All Other Comp ($)	Total ($)
Amit Kumar	-	-	-	-
Kim Huntley	35,000	-	-	35,000
G. Thomas Marsh (former Director)	35,000	-	-	35,000
Victor Lee	-	-	-	-

In addition to the fees listed above, we reimburse the directors for travel expenses submitted to us related to their attendance at meetings of the Board or its committees. The directors did not receive any other compensation or personal benefits.

Code of Ethics

We have adopted a code of ethics that applies to our principal executive officer, principal financial officer, principal accounting officer and other senior finance and accounting staff. The code is designed to, among other things, deter wrongdoing and to promote the honest and ethical conduct of our officers and employees. The text of our code of ethics can be found on our Internet website at www.ascentsolar.com. If we effect an amendment to, or waiver from, a provision of our code of ethics, we intend to satisfy our disclosure requirements by posting a description of such amendment or waiver on that Internet website or via a current report on Form 8-K.

Communication with the Board of Directors

Stockholders may communicate with the Board by sending correspondence to our Chairman, c/o the Corporate Secretary, at our corporate address on the cover of this Form 10-K. It is our practice to forward all such correspondence to our Chairman, who is responsible for determining whether to relay the correspondence to the other members of the Board.

Item 11. Executive Compensation

Compensation of Executive Officers in 2019

The following Summary Compensation Table sets forth certain information regarding the compensation of our principal executive officer for services rendered in all capacities to us during the years ended December 31, 2019 and 2018.

Summary Compensation Table

Name and Principal Position	Year	Salary ($)	Bonus ($)	Stock Awards ($)	Option Awards ($)	All Other Comp ($)	Total ($)
Victor Lee - Chief Executive Officer	2019	184,052	-	-	-	-	184,052
Victor Lee - Chief Executive Officer	2018	307,154	-	-	-	-	307,154

Executive Employment Agreements

On April 4, 2014, we entered into an employment agreement with Mr. Lee. The employment agreement provides that Mr. Lee will receive an annual base salary of $300,000, subject to annual adjustments as determined by our board. Mr. Lee will also be eligible for an annual bonus of up to 100% of his base salary as determined at the sole discretion of our board or compensation committee. Under this agreement, if the Company terminates Mr. Lee without cause, Mr. Lee is entitled to receive twelve months of base salary from the date of termination. In addition, if Mr. Lee is terminated without Cause, an additional portion of his stock options will become vested. In addition, the employment agreement provides that Mr. Lee is eligible to participate in the Company's standard benefit plans and programs.

As provided in the employment agreement, Mr. Lee was granted stock options to purchase 1 shares of the Company's common stock. These options vest in four equal annual installments on the first, second, third and fourth anniversaries of the employment agreement date, with an exercise price of $110,000 per share. These options expire on April 4, 2024.

The following table sets forth information concerning the outstanding equity awards granted to the named executive officers as of January 29, 2021.

Outstanding Equity Awards at Fiscal Year-End 2019

	Option Awards				Stock Awards	
	Number of Securities Underlying Unexercised Options (#)		Option Exercise	Option Expiration	Numer of Shares or Units of Stock That Have Not	Market Value of Shares or Units of Stock That Have Not
Name	Exerciseable	Unexerciseable	Price ($/sh)	Date	Vested	Vested
Victor Lee (1)	1	-	130,000	3/1/2023	-	-
	1	-	110,000	4/4/2024	-	-
	10	-	20,200	2/11/2025	-	-
	5	-	12,200	6/18/2025	-	-
	10	-	1,200	3/10/2026	-	-

Vesting dates of securities underlying unexercised options and stock awards not yet vested as of January 29, 2021:

(1) $130,000.00 options - vested on 3/1/15. $110,000.00 Options - vested on 4/4/18. $20,200.20 Options - vested on 2/11/17. $12,200 Options - vested on 6/18/18. $1,200 options - vested on 3/10/18.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

Securities Authorized for Issuance under Equity Compensation Plans

The following table sets forth information as of December 31, 2019 relating to all of our equity compensation plans:

	Number of securities to be issued upon exercise of outstanding options, warrants and rights	Weighted average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plans
Equity compensation plans approved by security holders	110	$ 132,147.00	107

SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The following table shows information regarding the beneficial ownership of our common stock by our directors, executive officers, former executive officers and greater than 5% beneficial owners as of January 29, 2021.

Beneficial ownership is determined in accordance with the rules of the SEC and generally includes any shares over which a person exercises sole or shared voting or investment power and all shares issuable upon exercise of options or the vesting of restricted stock within 60 days of January 29, 2021. For purposes of calculating the percentage of our common stock beneficially owned, the number of shares of our common stock includes 18,102,583,471 shares of our common stock outstanding as of January 29, 2021.

Unless otherwise indicated, each of the stockholders listed below has sole voting and investment power with respect to the shares beneficially owned.

The address for each director or named executive officer is c/o Ascent Solar Technologies, Inc., 12300 North Grant Street, Thornton, Colorado 80241.

Name of Beneficial Owner	No. of Shares Beneficially Owned	Percentage
5% Stockholders:		
Crowdex Investments, LLC (1)	25,000,000,000	80.38%
BD 1 Investment Holding, LLC (2)	105,000,000,000	85.29%
TubeSolar AG (3)	25,000,000,000	58.00%
Named Executive Officers and Directors:		
Victor Lee (4)	62	*
Michael J. Gilbreth	-	*
Amit Kumar, Ph.D.	47	*
Kim J. Huntley	30	*
Will Clarke	-	*
David Peterson (5)	-	*
All directors and executive officers as a group (6 persons)	139	*

* Less than 1.0%

(1) The address of Crowdex Investments, LLC ("Crowdex") is 1675 South State Street, Suite B, Kent County, Delaware 19901. Consists of (i) 12,000,000,000 shares of common stock owned as of January 29, 2021, and (ii) 13,000,000,000 additional shares of common stock issuable, within sixty days of such date, upon the

conversion 1,300 shares of Series 1A preferred stock. Includes 2,500,000,000 shares of common stock issuable upon the conversion of a certain convertible note. Such convertible note, however, contains a conversion limitation providing that Crowdex may not be issued shares of common stock upon conversion if, after giving effect to such issuance, Crowdex would beneficially own in excess of 4.99% of the Company's outstanding shares of common stock. Such convertible note would convert into an additional 2,500,000,000 shares of common stock only if such 4.99% limitation were deemed not to apply. Bernd Förtsch is the 100% indirect beneficial owner of Crowdex.

(2) The address of BD 1 Investment Holdings, LLC (“BD 1”) is 1675 South State Street, Suite B, Kent County, Delaware 19901. Consists of shares of common stock issuable, within sixty days of January 29, 2021, upon the conversion of certain convertible notes. Johannes Kuhn is the indirect beneficial owner of BD 1.

(3) The address for TubeSolar AG (“TubeSolar”) is Berliner Allee 65, D – 86153 Augsburg, Germany. Consists of shares of common stock issuable, within sixty days of January 29, 2021, upon the conversion 2,500 shares of Series 1A preferred stock. Bernd Förtsch indirectly owns a controlling interest in TubeSolar.

(4) Does not include 333,334 shares of common stock held by Tertius Financial Group Pte. Ltd. (“Tertius”). Mr. Lee is managing director and a 100% owner of Tertius. Mr. Lee disclaims beneficial ownership of our securities held by Tertius except to the extent of his pecuniary interest.

(5) Mr. Peterson is the manager of Crowdex. Mr. Peterson disclaims beneficial ownership of any securities owned by Crowdex.

Item 13. Certain Relationships and Related Transactions, and Director Independence

RELATED PARTY TRANSACTIONS

Relationship with Crowdex and TubeSolar

Pursuant to their ownership of Common Stock and Series 1A Preferred Stock, Crowdex and TubeSolar together would be entitled to cast a majority of the votes on any matter to be considered by stockholders for approval at any meeting of stockholders of the Company (or by written consent of stockholders in lieu of meeting). Crowdex and Tube, therefore, currently can control all matters requiring stockholder approval, including the election of directors and other significant corporate transactions.

Crowdex and TubeSolar are both indirectly beneficially owned and controlled by Bernd Förtsch.

On September 22, 2020, we entered into a securities purchase agreement (“Series 1A SPA”) with Crowdex for the private placement of the Company’s newly designated Series 1A Convertible Preferred Stock (“Series 1A Preferred Stock”). We sold 2,000 shares of Series 1A Preferred Stock to Crowdex in exchange for $2,000,000 of gross proceeds at an initial closing under the Series 1A SPA on September 22, 2020.

In November 2020, Crowdex converted 1,200 shares of outstanding Series 1A Preferred Stock into 12,000,000,000 shares of Common Stock.

On November 27, 2020, we issued to Crowdex a $500,000 unsecured convertible promissory note in a private placement and received $500,000 of gross proceeds from the offering. On December 31, 2020, we sold 500 shares of Series 1A Preferred Stock to Crowdex in exchange for the cancellation of the note issued on November 27, 2020. There were no additional cash proceeds from this closing.

Crowdex owns a $250,000 aggregate principal amount convertible promissory note of the Company. Crowdex acquired this note from the original noteholder in September 2020. The aggregate principal amount of this note (together with accrued interest) will mature on June 9, 2021. The note bears interest at a rate of 6% per annum. The interest rate increases to 18% in the event of a default under the Note. The note is convertible, at the holder’s option, into shares of the Company’s Common Stock at a conversion price equal to $0.0001 per share. However, the holder of the notes will not have the right to convert any portion of the note if the holder, together with its affiliates, would beneficially own in excess of 4.99% of the number of shares of the Common Stock outstanding immediately after giving effect to its conversion.

Relationship with BD 1

On December 18, 2020, the Company entered into a securities exchange agreement ("BD 1 Exchange Agreement") with BD 1. BD 1 had previously acquired all of the Company's existing outstanding unsecured notes (other than notes held by Global Ichiban and Crowdex described elsewhere in this Item 13) from the original note holders. Pursuant to the terms of the BD 1 Exchange Agreement, BD 1 agreed to surrender and exchange all of its outstanding promissory notes with principal balances of approximately $10.4 million (including accrued interest and default penalties). In exchange and without the payment of any additional consideration, the Company issued to BD 1 two unsecured convertible notes with an aggregate principal amount of $10,500,000 ("BD 1 Exchange Notes").

Johannes Kuhn is the indirect beneficial owner of BD 1.

The BD 1 Exchange Notes will mature on December 18, 2025. BD 1 has the right, at any time until the BD 1 Exchange Notes are fully paid, to convert any outstanding and unpaid principal and interest into shares of Common Stock at a fixed conversion price equal to $0.0001 per share. Accordingly, the Company would issue 105,000,000,000 shares of Common Stock upon a full conversion of the BD 1 Exchange Notes.

Relationship with Global Ichiban

On September 9, 2020, the Company entered into a securities exchange agreement ("GI Exchange Agreement") with Global Ichiban Limited, a British Virgin Islands corporation ("GI").

Pursuant to the terms of the GI Exchange Agreement, GI agreed to surrender and exchange all of its existing outstanding promissory notes with an aggregate principal balance of $6,374,666.57 (including accrued interest). In exchange, the Company issued to GI a secured convertible promissory note with a principal amount of $6,400,000.00 ("GI Exchange Note").

The GI Exchange Note will mature on September 30, 2022. Principal on the GI Exchange Note, if not converted will be payable in a lump sum on September 30, 2022. The GI Exchange Note will not bear any accrued interest but bears a default interest rate of 18% in the event of a default under the GI Exchange Note.

GI shall have the right, from and after 6 months from the date of issuance of the GI Exchange Note and then at any time until the GI Exchange Note is fully paid, to convert any outstanding and unpaid principal and interest into shares of Common Stock at a variable conversion price equal to 80% of the average closing bid price for the shares over the prior five trading days.

Conversion into shares of Common Stock may not be issued pursuant to the GI Exchange Note if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 4.99% of the Company's outstanding shares of Common Stock.

The GI Exchange Note is secured by a lien on substantially all of the Company's assets pursuant to the Security Agreement dated November 30, 2017 (the "Security Agreement") entered into between the Company and GI.

Policies and Procedures with Respect to Transactions with Related Persons

The Board recognizes that related person transactions can present a heightened risk of potential or actual conflicts of interest. Accordingly, our Audit Committee charter requires that all such transactions will be reviewed and subject to approval by members of our Audit Committee, which will have access, at our expense, to our or independent legal counsel. Future transactions with our officers, directors or greater than five percent stockholders will be on terms no less favorable to us than could be obtained from independent third parties.

Director Independence

Our Board of Directors has determined that three out of our five directors are independent directors, as defined under the applicable rules of the OTC Market listing standards. The independent directors are Messrs. Kumar, Huntley and Clarke.

Item 14. Principal Accounting Fees and Services

PRINCIPAL ACCOUNTANTS

Fees for audit and related services by our accounting firm, Haynie & Company, for the years ended December 31, 2019 and 2018 were as follows:

	2019	2018
Audit fees	$ 230,000	$ 223,000
Audit related fees	39,000	
Total audit and audit related fees	269,000	223,000
Tax fees	8,000	20,400
All other fees	-	2,000
Total Fees	$ 277,000	$ 245,400

Audit fees for Haynie & Company for fiscal year 2019 and 2018 represents aggregate fees for the 2019 and 2018 annual audit of the financial statements.

Audit Committee Pre-Approval Policies and Procedures

The Audit Committee charter provides that the Audit Committee will pre-approve all audit services and non-audit services to be provided by our independent auditors before the accountant is engaged to render these services. The Audit Committee may consult with management in the decision making process, but may not delegate this authority to management. The Audit Committee may delegate its authority to pre-approve services to one or more committee members, provided that the designees present the pre-approvals to the full committee at the next committee meeting. All audit and non-audit services performed by our independent accountants have been pre-approved by our Audit Committee to assure that such services do not impair the auditors' independence from us.

PART IV

Item 15. Exhibits and Financial Statement Schedules

(a) The following documents are filed as part of this Annual Report on Form 10-K:

(1) Financial Statements—See Index to Financial Statements at Item 8 of the Annual Report on Form 10-K.

(2) Financial Statement Schedules—Supplemental schedules are not provided because of the absence of conditions under which they are required or because the required information is given in the financial statements or notes thereto.

(3) Exhibits: See Item 15(b) below.

(b) Exhibits: The exhibits listed on the accompanying Index to Exhibits on this Form 10-K are filed or incorporated into this Form 10-K by reference.

INDEX TO EXHIBITS

Set forth below is a list of exhibits that are being filed or incorporated by reference into this Annual Report on Form 10-K:

Exhibit No.	Description
3.1	Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.2 to our Registration Statement on Form SB-2 filed on January 23, 2006 (Reg. No. 333-131216))
3.2	Certificate of Amendment to the Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.1 to our Quarterly Report on Form 10-Q for the quarter ended September 30, 2011)
3.3	Certificate of Amendment to the Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed February 11, 2014)
3.4	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated August 26, 2014. (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed September 2, 2014)
3.5	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated October 27, 2014 (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K dated October 28, 2014)
3.6	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated December 22, 2014. (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K dated December 23, 2014)
3.7	Second Amended and Restated Bylaws (incorporated by reference to Exhibit 3.2 to our Current Report on Form 8-K filed on February 17, 2009)
3.8	First Amendment to Second Amended and Restated Bylaws (incorporated by reference to Exhibit 3.3 to our Quarterly Report on Form 10-Q for the quarter ended September 30, 2009)
3.9	Second Amendment to Second Amended and Restated Bylaws (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed January 25, 2013)
3.10	Third Amendment to Second Amended and Restated Bylaws (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed December 18, 2015)
3.11	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated May 26, 2016 (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed June 2, 2016)
3.12	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated September 15, 2016 (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed September 16, 2016)
3.13	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated March 16, 2017 (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed March 17, 2017)
3.14	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated July 19, 2018 (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed July 23, 2018)
3.15	Certificate of Designations of Preferences, Rights, and Limitations of Series 1A Convertible Preferred Stock (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed September 30, 2020)
4.1	Form of Common Stock Certificate (incorporated by reference to Exhibit 4.1 to our Registration Statement on Form SB-2/A filed on June 6, 2006 (Reg. No. 333-131216))
4.2	Certificate of Designations of Series A Preferred Stock (filed as Exhibit 4.2 to our Registration Statement on Form S-3 filed July 1, 2013 (Reg. No. 333-189739))
10.1	Securities Purchase Agreement, dated January 17, 2006, between the Company and ITN Energy Systems, Inc. (incorporated by reference to Exhibit 10.1 to our Registration Statement on Form SB-2 filed on January 23, 2006 (Reg. No. 333-131216))CTR
10.2	Invention and Trade Secret Assignment Agreement, dated January 17, 2006, between the Company and ITN Energy Systems, Inc. (incorporated by reference to Exhibit 10.2 to our Registration Statement on Form SB-2 filed on January 23, 2006 (Reg. No. 333-131216))CTR
10.3	Patent Application Assignment Agreement, dated January 17, 2006, between the Company and ITN Energy Systems, Inc. (incorporated by reference to Exhibit 10.3 to our Registration Statement on Form SB-2 filed on January 23, 2006 (Reg. No. 333-131216))
10.4	License Agreement, dated January 17, 2006, between the Company and ITN Energy Systems, Inc. (incorporated by reference to Exhibit 10.4 to our Registration Statement on Form SB-2 filed on January 23, 2006 (Reg. No. 333-131216))CTR

10.5	Letter Agreement, dated November 23, 2005, among the Company, ITN Energy Systems, Inc. and the University of Delaware (incorporated by reference to Exhibit 10.16 to our Registration Statement on Form SB-2/A filed on May 26, 2006 (Reg. No. 333-131216))
10.6	License Agreement, dated November 21, 2006, between the Company and UD Technology Corporation (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on November 29, 2006)CTR
10.7	Novation Agreement, dated January 1, 2007, among the Company, ITN Energy Systems, Inc. and the United States Government (incorporated by reference to Exhibit 10.23 to our Annual Report on Form 10-KSB for the year ended December 31, 2006)
10.8†	Executive Employment Agreement, dated April 4, 2014, between the Company and Victor Lee (filed as Exhibit 10.1 to our Current Report on Form 8-K filed on April 9, 2014) †
10.9†	Seventh Amended and Restated 2005 Stock Option Plan (incorporated by reference to Annex B of our definitive proxy statement dated April 22, 2016)†
10.10†	Seventh Amended and Restated 2008 Restricted Stock Plan Stock Option Plan Plan (incorporated by reference to Annex A of our definitive proxy statement dated April 22, 2016)†
10.11	Security Agreement dated November 30, 2017 (incorporated by reference to Exhibit 10.65 to our Annual Report on Form 10-K filed March 29, 2018)
10.12	Securities Purchase Agreement dated February 14, 2019 (incorporated by reference to Exhibit 10.98 to our Annual Report on Form 10-K filed on April 16, 2019)
10.13	Convertible Promissory Note dated February 14, 2019 (incorporated by reference to Exhibit 10.99 to our Annual Report on Form 10-K filed on April 16, 2019)
10.14	GS Capital Partners Convertible Redeemable Note dated February 22, 2019 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on February 28, 2019)
10.15	GS Capital Partners Securities Purchase Agreement dated February 22, 2019 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on February 28, 2019)
10.16	Securities Purchase Agreement dated March 7, 2019 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on March 13, 2019)
10.17	Convertible Promissory Note dated March 7, 2019 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on March 13, 2019)
10.18	Exchange Agreement I dated March 11, 2019 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on March 15, 2019)
10.19	Convertible Promissory Note dated March 11, 2019 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on March 15, 2019)
10.20	Exchange Agreement II dated March 11, 2019 (incorporated by reference to Exhibit 10.3 to our Current Report on Form 8-K filed on March 15, 2019)
10.21	Convertible Promissory Note dated March 11, 2019 (incorporated by reference to Exhibit 10.4 to our Current Report on Form 8-K filed on March 15, 2019)
10.22	Non-Convertible Promissory Note dated March 11, 2019 (incorporated by reference to Exhibit 10.5 to our Current Report on Form 8-K filed on March 15, 2019)
10.23	Securities Purchase Agreement dated March 13, 2019 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on March 22, 2019)
10.24	Secured Convertible Promissory Note dated March 13, 2019 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on March 22, 2019)
10.25	Purchase and Sale Agreement dated April 12, 2019 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on April 18, 2019)
10.26	Securities Purchase Agreement dated May 2, 2019 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on May 8, 2019)
10.27	Convertible Promissory Note dated May 2, 2019 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on May 8, 2019)
10.28	Exchange Agreement dated May 2, 2019 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on May 8, 2019)
10.29	Convertible Promissory Note dated May 2, 2019 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on May 8, 2019)
10.30	Non-Convertible Promissory Note dated May 14, 2019 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on May 17, 2019)
10.31	Non-Convertible Promissory Note dated July 8, 2019 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on July 12, 2019)
10.32	Exchange Agreement dated August 22, 2019 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on August 28, 2019)

10.33	Convertible Exchange Promissory Note dated August 22, 2019 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on August 28, 2019)
10.34	Non-Convertible Promissory Note dated August 22, 2019 (incorporated by reference to Exhibit 10.3 to our Current Report on Form 8-K filed on August 28, 2019)
10.35	Securities Purchase Agreement dated August 26, 2019 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on August 30, 2019)
10.36	Convertible Promissory Note dated August 26, 2019 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on August 30, 2019)
10.37	Non-Convertible Promissory Note dated September 9, 2019 (incorporated by reference to Exhibit 10.3 to our Current Report on Form 8-K filed on September 13, 2019)
10.38	Exchange Agreement dated October 22, 2019 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on November 12, 2019)
10.39	Convertible Exchange Promissory Note dated October 22, 2019 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on November 12, 2019)
10.40	Convertible Promissory Note dated June 9, 2020 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on June 22, 2020)
10.41	Unsecured Convertible Note dated November 27, 2020 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on December 4, 2020)
10.42	GI Exchange Agreement dated September 9, 2020 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on December 28, 2020)
10.43	GI Exchange Note dated September 9, 2020 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on December 28, 2020)
10.44	Series 1A Securities Purchase Agreement dated September 22, 2020 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on September 30, 2020)
10.45	BD1 Exchange Agreement dated December 18, 2020 (incorporated by reference to Exhibit 10.3 to our Current Report on Form 8-K filed on December 28, 2020)
10.46	BD1 Exchange Note dated December 18, 2020 ($160,000 principal) (incorporated by reference to Exhibit 10.4 to our Current Report on Form 8-K filed on December 28, 2020)
10.47	BD1 Exchange Note dated December 18, 2020 ($10,340,000 principal) (incorporated by reference to Exhibit 10.5 to our Current Report on Form 8-K filed on December 28, 2020)
10.48	Amendment to Series 1A Securities Purchase Agreement dated December 31, 2020 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed January 6, 2021
10.49	Tranche 2 Series 1A Securities Purchase Agreement dated January 4, 2021 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed January 6, 2021)
10.50	Industrial Lease for 12300 Grant Street, Thornton, Colorado dated September 21, 2020*
23.1	Consent of Haynie & Company*
31.1	Chief Executive Officer Certification pursuant to section 302 of the Sarbanes-Oxley Act of 2002*
31.2	Chief Financial Officer Certification pursuant to section 302 of the Sarbanes-Oxley Act of 2002*
32.1	Chief Executive Officer Certification pursuant to section 906 of the Sarbanes-Oxley Act of 2002*
32.2	Chief Financial Officer Certification pursuant to section 906 of the Sarbanes-Oxley Act of 2002*
101.INS	Inline XBRL Instance Document – the instance document does not appear in the Interactive Data File because XBRL tags are embedded within the Inline XBRL document.
101.SCH	Inline XBRL Taxonomy Extension Schema Document
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)

*	Filed herewith
CTR	Portions of this exhibit have been omitted pursuant to a request for confidential treatment.
†	Denotes management contract or compensatory plan or arrangement.

Item 16. Form 10-K Summary

None.

ASCENT SOLAR TECHNOLOGIES, INC.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized on the 29th day of January, 2021.

ASCENT SOLAR TECHNOLOGIES, INC.
By: /S/ VICTOR LEE

Lee Kong Hian (aka Victor Lee)
President and Chief Executive Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant in the capacities and on the dates indicated.

Signature	Capacities	Date
/S/ VICTOR LEE Lee Kong Hian (aka Victor Lee)	President & Chief Executive Officer and a Director (Principal Executive Officer)	January 29, 2020
/S/ MICHAEL J. GILBRETH Michael J. Gilbreth	Chief Financial Officer (Principal Financial and Accounting Officer)	January 29, 2020
/S/ AMIT KUMAR Amit Kumar, Ph.D.	Chairman of the Board of Directors	January 29, 2020
/S/ WILL CLARKE Will Clarke	Director	January 29, 2020
/S/ KIM J. HUNTLEY Kim J. Huntley	Director	January 29, 2020
/S/ DAVID PETERSON David Peterson	Director	January 29, 2020

Ascent Solar Technologies, Inc.

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and
Stockholders of Ascent Solar Technologies, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Ascent Solar Technologies, Inc. (the Company) as of December 31, 2019 and 2018,and the related consolidated statements of operations, stockholders' deficit, and cash flows for each of the years in the two year period ended December 31, 2019, and the related notes (collectively referred to as the financial statements). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and the results of its operations and its cash flows for the years ended December 31, 2019 and 2018, in conformity with accounting principles generally accepted in the United States of America.

Consideration of the Company's Ability to Continue as a Going Concern

The accompanying financial statements have been prepared assuming that the Company will continue as a going concern. As more fully described in Note 4 to the financial statements, the Company has recurring losses, negative working capital and negative cash flows from operations. These factors raise substantial doubt about the Company's ability to continue as a going concern. Management's plans in regard to these matters are also described in Note 4 to the financial statements. The financial statements do not include any adjustments that might result from the outcome of this uncertainty. If the Company is unable to obtain financing or increase sales, there could be a material adverse effect on the Company.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits, we are required to obtain an understanding of internal control over financial reporting, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Haynie and Company

We have served as the Company's auditor since 2017
Salt Lake City, Utah
January 29, 2021

ASCENT SOLAR TECHNOLOGIES, INC.
CONSOLIDATED BALANCE SHEETS
As of December 31

	2019	2018
ASSETS		
Current Assets:		
Cash and cash equivalents	$ -	$ 18,159
Trade receivables, net of allowance of $46,023 and $45,664, respectively	-	165,160
Inventories	533,892	660,791
Prepaid and other current assets	51,598	138,369
Total current assets	585,490	982,479
Property, Plant and Equipment:	32,911,969	36,621,187
Accumulated depreciation	(28,677,350)	(32,207,829)
	4,234,619	4,413,358
Other Assets:		
Patents, net of accumulated amortization of $421,182 and $363,533, respectively	813,397	862,429
Other non-current assets	-	34,061
	813,397	896,490
Total Assets	5,633,506	6,292,327
LIABILITIES AND STOCKHOLDERS' DEFICIT		
Current Liabilities:		
Accounts payable	$ 1,663,316	$ 2,318,655
Related party payables	460,173	270,740
Accrued expenses	1,624,564	1,562,435
Accrued Interest	2,107,401	1,198,279
Notes Payable	1,506,530	1,516,530
Current portion of long-term debt	6,075,307	349,093
Secured promissory notes, net of discount of $837,242 and $2,824,365, respectively	6,335,655	3,447,380
Promissory notes, net of discount of $16,666 and $104,583, respectively	1,092,771	1,239,854
Convertible notes, net of discount of $861,567 and $394,011, respectively	2,129,016	1,852,722
Embedded Derivative Liability	7,717,150	10,114,452
Total current liabilities	30,711,883	23,870,140
Long-Term Debt	-	5,028,969
Accrued Warranty Liability	28,404	29,114
Stockholders' Deficit:		
Series A preferred stock, $.0001 par value; 750,000 shares authorized; 48,100 and 60,756 shares issued and outstanding, respectively ($703,863 and $822,620 Liquidation Preference, respectively)	5	6
Common stock, $0.0001 par value, 20,000,000,000 authorized; 4,759,161,650 and 63,537,885 shares issued and outstanding, respectively	475,917	6,354
Additional paid in capital	397,817,526	395,889,712
Accumulated Deficit	(423,400,229)	(418,531,968)
Total stockholders' deficit	(25,106,781)	(22,635,896)
Total Liabilities and Stockholders' Deficit	$ 5,633,506	$ 6,292,327

The accompanying notes are an integral part of these consolidated financial statements.

ASCENT SOLAR TECHNOLOGIES, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS

	Year Ended	
	2019	**2018**
Revenues		
Products	$ 638,380	$ 813,512
Government contracts	-	48,900
Total Revenues	638,380	862,412
Costs and Expenses		
Costs of Revenue	490,755	1,015,796
Research and development	1,310,948	2,794,641
Selling, general and administrative	1,846,944	3,244,793
Depreciation and Amortization	242,781	377,306
Total Costs and Expenses	3,891,428	7,432,536
Loss from Operations	(3,253,048)	(6,570,124)
Other Income/(Expense)		
Other Income/(Expense), net	842,500	13,144
Interest Expense	(8,850,002)	(7,351,681)
Change in fair value of derivatives and loss on extinguishment of liabilities, net	6,392,289	(2,127,831)
Total Other Income/(Expense)	(1,615,213)	(9,466,368)
Net Loss	$ (4,868,261)	$ (16,036,492)
Net Loss Per Share (Basic and Diluted)	$ (0.003)	$ (0.69)
Weighted Average Common Shares Outstanding (Basic and Diluted)	1,537,643,750	23,157,607

The accompanying notes are an integral part of these consolidated financial statements.

ASCENT SOLAR TECHNOLOGIES, INC.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' DEFICIT

	Series A Preferred Stock		Common Stock		Additional Paid-In	Accumulated	Total Stockholders'
	Shares	Amount	Shares	Amount	Capital	Deficit	Equity (Deficit)
Balance, December 31, 2017	60,756	$ 6	9,606,677	$ 961	$387,292,174	$(402,495,476)	$(15,202,335)
Interest and Dividend Expense paid with Common Stock	-	-	1,137,349	114	62,800	-	62,914
Conversion of St.George Note into Common Shares	-	-	15,849,656	1,585	605,015	-	606,600
Conversion of Global Ichiban Note into Common Shares	-	-	3,486,274	349	1,425,651	-	1,426,000
Conversion of BayBridge Note into Common Shares	-	-	19,838,979	1,984	770,517	-	772,501
Conversion of Bellridge Note into Common Shares	-	-	10,912,281	1,091	243,909	-	245,000
Conversion of Note Payable into Common Shares	-	-	2,004,169	200	356,542	-	356,742
Conversion of Series K Preferred Stock into Common Shares	-	-	702,500	70	2,809,930	-	2,810,000
Loss on Extinguishment of Liabilities	-	-	-	-	2,293,909	-	2,293,909
Stock based compensation	-	-	-	-	29,265	-	29,265
Net Loss	-	-	-	-	-	(16,036,492)	(16,036,492)
Balance at December 31, 2018	60,756	6	63,537,885	6,354	395,889,712	(418,531,968)	(22,635,896)
Interest and Dividend Expense paid with Common Stock	-	-	187,649,473	18,766	98,488	-	117,254
Stock issued for fees	-	-	399,336,751	39,934	39,931	-	79,865
Stock based compensation	-	-	-	-	20,750	-	20,750
Loss on Extinguishment of Liabilities	-	-	-	-	878,788	-	878,788
Conversion of BayBridge Note into Common Shares	-	-	959,692,046	95,969	185,931	-	281,900
Conversion of Bellridge Note into Common Shares	-	-	983,601,030	98,360	144,640	-	243,000
Conversion of Global Ichiban Note into Common Shares	-	-	9,595,327	960	114,040	-	115,000
Conversion of GS Capital Note into Common Shares	-	-	441,155,770	44,116	39,953	-	84,068
Conversion of Power Up Note into Common Shares	-	-	572,231,537	57,223	210,457	-	267,680
Conversion of St.George Note into Common Shares	-	-	1,142,361,830	114,236	194,834	-	309,070
Conversion of Series A Preferred Stock into Common Stock	(12,656)	(1)	1	-	1	-	-
Net Loss						(4,868,261)	(4,868,261)
Balance at December 31, 2019	48,100	$ 5	4,759,161,650	$475,917	$397,817,526	$(423,400,229)	$(25,106,781)

The accompanying notes are an integral part of these consolidated financial statements.

ASCENT SOLAR TECHNOLOGIES, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS

	For the Years Ended December 31, 2019	For the Years Ended December 31, 2018
Operating Activities:		
Net loss	$ (4,868,261)	$ (16,036,492)
Adjustments to reconcile net loss to cash used in operating activities:		
Depreciation and amortization	242,780	381,056
Stock based compensation	20,750	29,265
Realized loss (gain) on sale of assets	(842,500)	(14,000)
Amortization of deferred financing costs	24,639	29,167
Non-cash interest expense	2,579,674	704,968
Amortization of debt discount	4,735,907	5,198,003
Bad debt expense	359	(2,536)
Write off of Enerplex Patents	-	467,005
Warranty reserve	(710)	(28,589)
Change in fair value of derivatives and loss on extinguishment of liabilities, net	(6,392,289)	2,127,831
Changes in operating assets and liabilities:		
Accounts receivable	164,801	(155,966)
Inventories	126,899	377,063
Prepaid expenses and other current assets	114,493	383,475
Accounts payable	(288,945)	994,418
Related party payable	189,433	67,913
Accrued expenses	1,415,423	1,083,727
Accrued Interest	62,129	377,846
Net cash used in operating activities	(2,715,418)	(4,015,846)

Investing Activities:		
Purchase of property, plant and equipment	(6,393)	-
Proceeds on sale of Assets	842,500	14,000
Patent activity costs	(8,616)	(16,447)
Net cash provided by (used in) investing activities	827,491	(2,447)
Financing Activities:		
Proceeds from debt issuance	1,887,268	4,103,500
Repayment of debt	(10,000)	(145,666)
Payment of debt financing costs	(7,500)	(11,000)
Net cash provided by (used in) financing activities	1,869,768	3,946,834
Net change in cash and cash equivalents	(18,159)	(71,459)
Cash and cash equivalents at beginning of period	18,159	89,618
Cash and cash equivalents at end of period	$ -	$ 18,159
Supplemental Cash Flow Information:		
Cash paid for interest	$ 2,698	$ 237,681
Non-Cash Transactions:		
Non-cash conversions of preferred stock and convertible notes to equity	$ 1,417,976	$ 6,216,842
Non-cash financing costs	$ 10,800	$ 45,000
Debt converted to accounts payable	$ -	$ -
Accounts payable converted to notes payable	$ -	$ 308,041
Accounts payable forgiven related to sale of EnerPlex	$ -	$ -

Interest converted to principal	$ 171,152	$ 140,518
Common shares issued for fees	$ 49,622	$ -
Initial embedded derivative liabilities	$ 4,507,381	$ 3,873,697
Promissory notes exchanged for convertible notes	$ 850,000	$ 475,000

The accompanying notes are an integral part of these consolidated financial statements.

ASCENT SOLAR TECHNOLOGIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

NOTE 1. ORGANIZATION

Ascent Solar Technologies, Inc. (“Ascent”) was incorporated on October 18, 2005 from the separation by ITN Energy Systems, Inc. (“ITN”) of its Advanced Photovoltaic Division and all of that division’s key personnel and core technologies. ITN, a private company incorporated in 1994, is an incubator dedicated to the development of thin film, photovoltaic (“PV”), battery, fuel cell and nano technologies. Through its work on research and development contracts for private and governmental entities, ITN developed proprietary processing and manufacturing know how applicable to PV products generally, and to Copper-Indium-Gallium-diSelenide (“CIGS”) PV products in particular. ITN formed Ascent to commercialize its investment in CIGS PV technologies. In January 2006, in exchange for 102,800 shares of common stock of Ascent, ITN assigned to Ascent certain CIGS PV technologies and trade secrets and granted to Ascent a perpetual, exclusive, royalty free worldwide license to use, in connection with the manufacture, development, marketing and commercialization of CIGS PV to produce solar power, certain of ITN’s existing and future proprietary and control technologies that, although non-specific to CIGS PV, Ascent believes will be useful in its production of PV modules for its target markets. Upon receipt of the necessary government approvals and pursuant to novation in early 2007, ITN assigned government funded research and development contracts to Ascent and also transferred the key personnel working on the contracts to Ascent.

Currently, the Company is focusing on integrating its PV products into high value markets such as aerospace, satellites, near earth orbiting vehicles, and fixed wing unmanned aerial vehicles (UAV). The value proposition of Ascent’s proprietary solar technology not only aligns with the needs of customers in these industries, but also overcomes many of the obstacles other solar technologies face in these unique markets. Ascent has the capability to design and develop finished products for end users in these areas as well as collaborate with strategic partners to design and develop custom integrated solutions for products like fixed-wing UAVs. Ascent sees significant overlap of the needs of end users across some of these industries and can achieve economies of scale in sourcing, development, and production in commercializing products for these customers.

NOTE 2. BASIS OF PRESENTATION

The accompanying consolidated financial statements have been derived from the accounting records of Ascent Solar Technologies, Inc., Ascent Solar (Asia) Pte. Ltd., and Ascent Solar (Shenzhen) Co., Ltd. (collectively, "the Company") as of December 31, 2019 and December 31, 2018 , and the results of operations for the years ended December 31, 2019 and 2018. Ascent Solar (Shenzhen) Co., Ltd. is wholly owned by Ascent Solar (Asia) Pte. Ltd., which is wholly owned by Ascent Solar Technologies, Inc. All significant inter-company balances and transactions have been eliminated in the accompanying consolidated financial statements.

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

NOTE 3. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Cash Equivalents: The Company classifies all short-term investments in interest bearing bank accounts and highly liquid debt securities purchased with an original maturity of three months or less to be cash equivalents. The Company maintains cash balances which may exceed federally insured limits. The Company does not believe this results in significant credit risk.

Foreign Currencies: Bank account balances held in foreign currencies are translated to U.S. dollars utilizing the period end exchange rate. Gains or losses incurred in connection with the Company’s accounts held in foreign currency were not material for the years ended December 31, 2019 and 2018 and were recorded in “Other Income/(Expense)” in the Consolidated Statements of Operations.

Receivables and Allowance for Doubtful Accounts: Trade accounts receivable are recorded at the invoiced amount as the result of transactions with customers. The Company maintains allowances for doubtful accounts for estimated losses resulting from the inability of its customers to make required payments. The Company estimates the collectability of accounts receivable using analysis of historical bad debts, customer creditworthiness and current economic trends. Reserves are established on an account-by-account basis. Account balances are written off against the allowance in the period in which the

Company determines that is it probable that the receivable will not be recovered. As of December 31, 2019, and December 31, 2018, the Company had an allowance for doubtful accounts of $46,023 and $45,664 respectively.

Inventories: All inventories are stated at the lower of cost or net realizable value, with cost determined using the weighted average method. Inventory balances are frequently evaluated to ensure they do not exceed net realizable value. The computation for net realizable value takes into account many factors, including expected demand, product life cycle and development plans, module efficiency, quality issues, obsolescence and others. Management's judgment is required to determine reserves for obsolete or excess inventory. As of December 31, 2019, and 2018, the Company had inventory reserve balances of $584,269 and $745,927 respectively. In response to management's estimate of current market conditions, the Company has reserved all of its finished goods inventory as of December 31, 2019. If actual demand and market conditions are less favorable than those estimated by management, additional inventory write downs may be required**.**

Property, Plant and Equipment: Property, plant and equipment are recorded at the original cost to the Company. Assets are being depreciated over estimated useful lives of three to forty years using the straight-line method, as presented in the table below, commencing when the asset is placed in service. Leasehold improvements are depreciated over the shorter of the remainder of the lease term or the life of the improvements. Upon retirement or disposal, the cost of the asset disposed of and the related accumulated depreciation are removed from the accounts and any gain or loss is reflected in income. Expenditures for repairs and maintenance are expensed as incurred.

	Useful Lives in Years
Buildings	40
Manufacturing machinery and equipment	5 - 10
Furniture, fixtures, computer hardware/ software	3 - 7
Leasehold improvements	life of lease

Patents: At such time as the Company is awarded patents, patent costs are amortized on a straight-line basis over the legal life on the patents, or over their estimated useful lives, whichever is shorter. During the year ended December 31, 2018, the Company wrote down the remaining international EnerPlex IP, which was not part of the 2017 sale of the EnerPlex IP. This write down consisted of $692,000 in capitalized patent costs, reduced by $225,000 in accumulated amortization, resulting in an expense of $467,000. As of December 31, 2019, and 2018, the Company had $813,396 and $862,429 of net patent costs, respectively. Of these amounts $149,660 and $207,308 represent costs net of amortization incurred for awarded patents, and the remaining $663,737 and $655,121 represents costs incurred for patent applications to be filed as of December 31, 2019 and 2018, respectively. During the years ended December 31, 2019 and 2018, the Company capitalized $8,616 and $16,447 in patent costs, respectively, as it worked to secure design rights and trademarks for newly developed products. Amortization expense was $57,649 and $158,488 for the years ended December 31, 2019 and 2018, respectively**.**

As of December 31, 2019, future amortization of patents is expected as follows:

2020	$	45,920
2021		37,429
2022		33,924
2023		25,154
2024		7,233
	$	149,660

Impairment of Long-lived Assets: The Company analyzes its long-lived assets (property, plant and equipment) and definitive-lived intangible assets (patents) for impairment, both individually and as a group, whenever events or changes in circumstances indicate the carrying amount of the assets may not be recoverable. Events that might cause impairment would include significant current period operating or cash flow losses associated with the use of a long-lived asset or group of assets combined with a history of such losses, significant changes in the manner of use of assets and significant negative industry or economic trends. An undiscounted cash flow analysis is calculated to determine if impairment exists. If impairment is determined to exist, any related loss is calculated using the difference between the fair value and the carrying value of the assets. During the years ended December 31, 2019 and 2018, the Company did not incur impairments of its manufacturing facilities and equipment**.**

Interest Capitalization: Historically the Company has capitalized interest cost as part of the cost of acquiring or constructing certain assets during the period of time required to get the asset ready for its intended use. The Company capitalized interest to the extent that expenditures to acquire or construct an asset have occurred and interest cost has been incurred.

Convertible Notes: The Company issues, from time to time, convertible notes. Refer to Notes 10 and 12 for further information.

Convertible Preferred Stock: The Company evaluates its preferred stock instruments under FASB ASC 480, *"Distinguishing Liabilities from Equity"* to determine the classification, and thereby the accounting treatment, of the instruments. Refer to Notes 13 and 19 for further discussion on the classification of each instrument.

Derivatives: The Company evaluates its financial instruments under FASB ASC 815, *"Derivatives and Hedging"* to determine whether the instruments contain an embedded derivative. When an embedded derivative is present, the instrument is evaluated for a fair value adjustment upon issuance and at the end of every reporting period. Any adjustments to fair value are treated as gains and losses in fair values of derivatives and are recorded in the Consolidated Statements of Operations.

The following table is a summary of the derivative liability activity for the years ended December 31, 2019 and 2018:

Derivative Liability Balance as of December 31, 2017	**$ 6,406,833**
Additional derivative liability on new notes	3,873,697
Change in fair value of derivative liability	(27,686)
Liability extinguished	(138,392)
Derivative Liability Balance as of December 31, 2018	**10,114,452**
Liability assigned	-
Additional derivative liability on new notes	4,507,380
Change in fair value of derivative liability	(6,196,026)
Liability extinguished	(708,656)
Derivative Liability Balance as of December 31, 2019	**$ 7,717,150**

Refer to Notes 10 and 12 for further discussion on the embedded derivatives of each instrument.

Product Warranties: The Company provides a limited warranty to the original purchaser of products against defective materials and workmanship. The Company also guarantees that standalone modules and PV integrated consumer electronics will achieve and maintain the stated conversion efficiency rating for certain products. Warranty accruals are recorded at the time of sale and are estimated based upon product warranty terms, historical experience and analysis of peer company product returns. The Company assesses the adequacy of its liabilities and makes adjustments as necessary based on known or anticipated warranty claims, or as new information becomes available.

Warrant Liability: Warrants to purchase the Company's common stock with nonstandard anti-dilution provisions, regardless of the probability or likelihood that may conditionally obligate the issuer to ultimately transfer assets, are classified as liabilities and are recorded at their estimated fair value at each reporting period. Any change in fair value of these warrants is recorded at each reporting period in Other income/(expense) on the Company's statement of operations.

Revenue Recognition:

Product revenue. We recognize revenue for module and other equipment sales at a point in time following the transfer of control of such products to the customer, which typically occurs upon shipment or delivery depending on the terms of the underlying contracts. For module and other equipment sales contracts that contain multiple performance obligations, we allocate the transaction price to each performance obligation identified in the contract based on relative standalone selling prices, or estimates of such prices, and recognize the related revenue as control of each individual product is transferred to the customer, in satisfaction of the corresponding performance obligations.

During the years ended December 31, 2019 and 2018, the company recognized product revenue of $638,380 and $813,512, respectively.

Government contracts revenue. Revenue from government research and development contracts is generated under terms that are cost plus fee or firm fixed price. We generally recognize this revenue over time using cost-based input methods, which recognize revenue and gross profit as work is performed based on the relationship between actual costs incurred compared to the total estimated costs of the contract. In applying cost-based input methods of revenue recognition, we use the actual costs incurred relative to the total estimated costs to determine our progress towards contract completion and to calculate the corresponding amount of revenue to recognize.

Cost based input methods of revenue recognition are considered a faithful depiction of our efforts to satisfy long-term government research and development contracts and therefore reflect the performance obligations under such contracts. Costs incurred that do not contribute to satisfying our performance obligations are excluded from our input methods of revenue recognition as the amounts are not reflective of our transferring control under the contract. Costs incurred towards contract completion may include direct costs plus allowable indirect costs and an allocable portion of the fixed fee. If actual and estimated costs to complete a contract indicate a loss, provision is made currently for the loss anticipated on the contract.

During the year ended December 31, 2018, the Company recognized government contract revenue of $48,900. No government contract revenue was recognized for the year ended December 31, 2019.

Shipping and Handling Costs: The Company classifies shipping and handling costs for products shipped to customers as a component of "Cost of revenues" on the Company's Consolidated Statements of Operations. Customer payments of shipping and handling costs are recorded as a component of Revenues.

Research, Development and Manufacturing Operations Costs: Research, development and manufacturing operations expenses were $1.3 million and $2.8 million for the years ended December 31, 2019 and 2018, respectively. Research, development and manufacturing operations expenses include: 1) technology development costs, which include expenses incurred in researching new technology, improving existing technology and performing federal government research and development contracts, 2) product development costs, which include expenses incurred in developing new products and lowering product design costs, and 3) pre-production and production costs, which include engineering efforts to improve production processes, material yields and equipment utilization, and manufacturing efforts to produce saleable product. Research, development and manufacturing operations costs are expensed as incurred, with the exception of costs related to inventoried raw materials, work-in-process and finished goods, which are expensed as cost of revenue as products are sold**.**

Marketing and Advertising Costs: The Company advertises in print, television, online and through social media. The Company will also authorize customers to run advertising campaigns on its behalf through various media outlets. Marketing and advertising costs are expensed as incurred. Marketing and advertising expenses were $2,465 and $23,560 for the years ended December 31, 2019 and 2018, respectively**.**

Share-Based Compensation: The Company measures and recognizes compensation expense for all share-based payment awards made to employees, officers, directors, and consultants based on estimated fair values. The value of the portion of the award that is ultimately expected to vest is recognized as expense over the requisite service period in the Company's Statements of Operations. Share-based compensation is based on awards ultimately expected to vest and is reduced for estimated forfeitures. Forfeitures are estimated at the time of grant and revised, as necessary, in subsequent periods if actual forfeitures differ from those estimates. For purposes of determining estimated fair value of share-based payment awards on the date of grant the Company uses the Black-Scholes option-pricing model ("Black-Scholes Model") for option awards. The Black-Scholes Model requires the input of highly subjective assumptions. Because the Company's employee stock options may have characteristics significantly different from those of traded options, and because changes in the subjective input assumptions can materially affect the fair value estimate, in management's opinion, the existing models may not provide a reliable single measure of the fair value of the Company's employee stock options. Management will continue to assess the assumptions and methodologies used to calculate estimated fair value of share-based compensation. Circumstances may change and additional data may become available over time, which result in changes to these assumptions and methodologies, which could materially impact the Company's fair value determination. The Company estimates the fair value of its restricted stock awards as its stock price on the grant date.

The accounting guidance for share-based compensation may be subject to further interpretation and refinement over time. There are significant differences among option valuation models, and this may result in a lack of comparability with other companies that use different models, methods and assumptions. If factors change and the Company employs different assumptions in the accounting for share-based compensation in future periods, or if the Company decides to use a different valuation model, the compensation expense the Company records in the future may differ significantly from the amount recorded in the current period and could materially affect its loss from operations, net loss and net loss per share.

Income Taxes: Deferred income taxes are provided using the liability method whereby deferred tax assets are recognized for deductible temporary differences and operating loss and tax credit carry forwards and deferred tax liabilities are recognized for taxable temporary differences. Temporary differences are the differences between the reported amounts of assets and liabilities and their tax bases. Deferred tax assets are reduced by a valuation allowance when, in the opinion of management, it is more likely than not that some portion or all of the deferred tax assets will not be realized. Deferred tax assets and liabilities are adjusted for the effects of the changes in tax laws and rates as of the date of enactment. Interest and penalties, if applicable, would be recorded in operations.

The Company has analyzed filing positions in all of the federal and state jurisdictions where it is required to file income tax returns, as well as all open tax years (2016-2019) in these jurisdictions. The Company believes its income tax filing positions and deductions will be sustained on audit and does not anticipate any adjustments that will result in a material adverse effect on the Company's financial condition, results of operations, or cash flows. Therefore, no reserves for uncertain income tax positions have been recorded.

Net Loss per Common Share: Basic loss per share does not include dilution and is computed by dividing income available to common stockholders by the weighted average number of shares outstanding during the period. Diluted earnings per share reflect the potential securities that could share in the earnings of the Company, similar to fully diluted earnings per share. Common stock equivalents outstanding as of December 31, 2019 and 2018 of approximately 5.9 billion and 834 million shares, respectively, have been omitted from loss per share because they are anti-dilutive. Common stock equivalents consist of preferred stock, preferred stock dividend liability amounts (assuming the make-whole dividend liability is paid in common stock in lieu of cash), and convertible notes (assuming the amortization payments are paid in common stock in lieu of cash). Net loss per common share was the same for both basic and diluted methods for the periods ended December 31, 2019 and 2018.

Fair Value Estimates: Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. Valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. The Company uses fair value hierarchy based on three levels of inputs, of which, the first two are considered observable and the last unobservable, to measure fair value:

- Level 1 - Quoted prices in active markets for identical assets or liabilities.
- Level 2 - Inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.
- Level 3 - Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

Certain long-lived assets and current liabilities have been measured at fair value on a recurring and non-recurring basis. See Note 6. Property, Plant and Equipment, Note 10. Secured Promissory Notes, and Note 12. Convertible Notes. The carrying amount of our long-term debt outstanding approximates fair value because our current borrowing rate does not materially differ from market rates for similar bank borrowings. The carrying value for cash and cash equivalents, restricted cash, accounts receivable, accounts payable, accrued expenses and other assets and liabilities approximate their fair values due to their short maturities.

Use of Estimates: The preparation of financial statements in conformity with U.S. generally accepted accounting principles ("GAAP") requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Recently Issued Accounting Standards

In February 2016, the FASB issued ASU No. 2016-02, Leases *(Topic 842)*. ASU 2016-02 requires lessees to recognize all leases, including operating leases, on the balance sheet as a lease asset or lease liability, unless the lease is a short-term lease. ASU 2016-02 also requires additional disclosures regarding leasing arrangements. ASU 2016-02 is effective for interim periods and fiscal years beginning after December 15, 2018, and early application is permitted. The Company has evaluated the adoption of this guidance and has determined there is no material impact on its consolidate financial statements because the Company does not have any leases at the date of the adoption.

In June 2018, the FASB issued ASU No. 2018-07, *Compensation-Stock Compensation (Topic 718): Improvements to Non-employee Share-Based Payment Accounting* , which simplifies the accounting for share-based payments to non-employees by aligning it with the accounting for share-based payments to employees, with specified exceptions. This standard is effective for the Company in the first quarter of 2020, and early adoption is permitted. The implementation of ASU 2018-07 did not have a material effect on the Company's consolidated financial statements.

In August 2018, the FASB issued ASU No. 2018-13, Fair *Value Measurement (Topic 820): Disclosure Framework-Changes to the Disclosure Requirements for Fair Value Measurement*, which modifies the disclosure requirements of fair value measurements. This standard is effective for the Company in the first quarter of 2020, and early adoption is permitted. The Company is currently evaluating the impact of the effect adoption of this standard will have on its consolidated financial statements.

In August 2020, the FASB issued ASU No. 2020-06, *Debt - Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging Contracts in Entity s Own Equity (Subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity s Own Equity*. ASU 2020-06 will simplify the accounting for convertible instruments by reducing the number of accounting models for convertible debt instruments and convertible preferred stock. Limiting the accounting models results in fewer embedded conversion features being separately recognized from the host contract as compared with current GAAP. Convertible instruments that continue to be subject to separation models are (1) those with embedded conversion features that are not clearly and closely related to the host contract, that meet the definition of a derivative, and that do not qualify for a scope exception from derivative accounting and (2) convertible debt instruments issued with substantial premiums for which the premiums are recorded as paid-in capital. ASU 2020-06 also amends the guidance for the derivatives scope exception for contracts in an entity’s own equity to reduce form-over-substance-based accounting conclusions. ASU 2020-06 will be effective for public companies for fiscal years beginning after December 15, 2023, including interim periods within those fiscal years. Early adoption is permitted, but no earlier than fiscal years beginning after December 15, 2020, including interim periods within those fiscal years. Management has not yet evaluated the impact that the adoption of ASU 2020-06 will have on the Company’s consolidated financial statement presentation or disclosures.

Other new pronouncements issued but not effective as of December 31, 2019 are not expected to have a material impact on the Company’s consolidated financial statements.

NOTE 4. LIQUIDITY, CONTINUED OPERATIONS, AND GOING CONCERN

During the years ended December 31, 2019 and 2018, the Company entered into multiple financing agreements to fund operations. Further discussion of these transactions can be found in Notes 8, 9, 10, 11, 12, and 19.

The Company has continued limited PV production at its manufacturing facility. The Company does not expect that sales revenue and cash flows will be sufficient to support operations and cash requirements until it has fully implemented its product strategy. During the year ended December 31, 2019 the Company used $2,715,418 in cash for operations. As of December 31, 2019, the Company had $17,139,279 in debt and 2,123,489 in payables, all of which were in default. Also as of December 31, 2019, the Company owed $2,107,401 in interest.

Additional projected product revenues are not anticipated to result in a positive cash flow position for the year 2020 overall and, as of December 31, 2019, the Company has a working capital deficit of $30,126,393 million. As such, cash liquidity sufficient for the year ending December 31, 2020 will require additional financing.

The Company continues to accelerate sales and marketing efforts related to its consumer and military solar products and specialty PV application strategies through expansion of its sales and distribution channels. The Company has begun activities related to securing additional financing through strategic or financial investors, but there is no assurance the Company will be able to raise additional capital on acceptable terms or at all. If the Company's revenues do not increase rapidly, and/or additional financing is not obtained, the Company will be required to significantly curtail operations to reduce costs and/or sell assets. Such actions would likely have an adverse impact on the Company's future operations.

As a result of the Company’s recurring losses from operations, and the need for additional financing to fund its operating and capital requirements, there is uncertainty regarding the Company’s ability to maintain liquidity sufficient to operate its business effectively, which raises substantial doubt as to the Company’s ability to continue as a going concern. The Company has scaled down its operations, due to cash flow issues, and does not expect to ramp up until significant financing is obtained.

Management cannot provide any assurances that the Company will be successful in accomplishing any of its plans. These consolidated financial statements do not include any adjustments that might be necessary should the Company be unable to continue as a going concern.

NOTE 5. TRADE RECEIVABLES

Trade receivables, net consist of amounts generated from product sales and government contracts. Accounts receivable totaled zero and $165,160 as of December 31, 2019 and 2018, respectively.

Provisional Indirect Cost Rates - The Company bills the government under cost-based research and development contracts at provisional billing rates which permit the recovery of indirect costs. These rates are subject to audit on an annual basis by the government agencies' cognizant audit agency. The cost audit may result in the negotiation and determination of the final indirect cost rates. In the opinion of management, re-determination of any cost-based contracts will not have a material effect on the Company's financial position or results of operations.

NOTE 6. PROPERTY, PLANT AND EQUIPMENT

The following table summarizes property, plant and equipment as of December 31, 2019 and December 31, 2018:

	As of December 31,	
	2019	2018
Building	$ 5,828,960	$ 5,828,960
Furniture, fixtures, computer hardware and computer software	489,421	489,421
Manufacturing machinery and equipment	26,593,588	30,302,806
Depreciable property, plant and equipment	32,911,969	36,621,187
Less: Accumulated depreciation and amortization	(28,677,350)	(32,207,829)
Net property, plant and equipment	$ 4,234,619	$ 4,413,358

The Company analyzes its long-lived assets for impairment, both individually and as a group, whenever events or changes in circumstances indicate that the carrying amount of the assets may not be recoverable.

Depreciation expense for the years ended December 31, 2019 and 2018 was $185,132 and $218,818, respectively. Depreciation expense is recorded under "Depreciation and amortization expense" in the Consolidated Statements of Operations.

NOTE 7. INVENTORIES

Inventories consisted of the following at December 31, 2019 and December 31, 2018:

	As of December 31,	
	2019	2018
Raw materials	$ 503,832	$ 660,791
Work in process	30,060	-
Finished goods	—	-
Total	$ 533,892	$ 660,791

NOTE 8. NOTES PAYABLE

On February 24, 2017, the Company entered into an agreement with a vendor to convert the balance of their account into three notes payable in the aggregate amount of $765,784. The notes bear interest of 6% per annum and matured on February 24, 2018; all outstanding principal and accrued interest is due and payable upon maturity. On June 5, 2018, the Company entered into another agreement with the same vendor to convert the balance of their account into a fourth note payable with a principal amount of $308,041, this note also bears interest at a rate of 6% per annum, and matured on July 31, 2018. As of December 31, 2019, the Company had not made any payments on these notes; the total outstanding principal and accrued interest were $1,073,825 and $162,205, respectively; the notes are in default and due upon demand. Subsequent to the date of this report, this debt was settled in full. See Note 19, Subsequent Events, for further discussion.

On June 30, 2017, the Company entered into an agreement with a vendor to convert the balance of their account into a note payable in the amount of $250,000. The note bears interest of 5% per annum and matured on February 28, 2018. As of December 31, 2019, the Company had not made any payments on this note, the accrued interest was $31,301, and the note is in default and due upon demand.

On September 30, 2017, the Company entered into a settlement agreement with a customer to convert the credit balance of their account into a note payable in the amount of approximately $215,234. The note bears interest of 5% per annum and matured on September 30, 2018. The Company has not made the monthly payments of $18,000 that were to commence on October 30, 2017; as of December 31, 2019, the company had paid principal of $32,529 and interest of $897. The remaining principal and interest balances, as of December 31, 2019, were $182,705 and $21,933, respectively. Subsequent to the date of this report, this debt was settled in full. See Note 19, Subsequent Events, for further discussion.

NOTE 9. DEBT

On August 2, 2019, CHFA entered into an agreement to assign the note to Iliad Research and Trading, L.P., a Utah limited liability partnership ("IRT"). This agreement closed on September 11, 2019, and IRT paid a total of $5,885,148 to CHFA to assume the note. The payment amount consisted of $5,405,666 of principal and $479,482 of interest and fees. Interest will accrue on the note at the default interest rate of 10.5%.

The outstanding principal balance of the note was $6,075,306 and $5,378,062 as of December 31, 2019 and 2018, respectively.

As of December 31, 2019, the Company had not made any payments to IRT and the accrued interest on the note was $190,158. Since the loan is in default, the entire outstanding balance is classified as a current liability on the Company's December 31, 2019 Balance Sheet. Subsequent to the date of this report, this debt was settled in full. See *Sale and Leaseback of Facility* section of Note. 19, Subsequent Events, for further discussion.

NOTE 10. SECURED PROMISSORY NOTE

The following table provides a summary of the activity of the Company's secured notes:

	Global Ichiban	St. George	Total
Secured Notes Principal Balance at December 31, 2017	$ 4,557,227	$ -	$ 4,557,227
New notes	1,935,000	1,315,000	3,250,000
Note conversions	(1,426,000)	-	(1,426,000)
Interest converted to principal	140,518	-	140,518
Note assignments	(250,000)	-	(250,000)
Secured Notes Principal Balance at December 31, 2018	4,956,745	1,315,000	6,271,745
Less: remaining discount	(2,012,698)	(811,667)	(2,824,365)
Secured Notes, net of discount, at December 31, 2018	**2,944,047**	**503,333**	**3,447,380**
New notes	-	845,000	845,000
Note conversions	(115,000)	-	(115,000)
Interest converted to principal	171,152	-	171,152
Secured Notes Principal Balance at December 31, 2019	5,012,897	2,160,000	7,172,897
Less: remaining discount	(765,576)	(71,666)	(837,242)
Secured Notes, net of discount, at December 31, 2019	**$ 4,247,321**	**$2,088,334**	**$ 6,335,655**

Global Ichiban Secured Promissory Notes

During 2018, the company issued to Global $1.9 million aggregate principal amount in notes, in exchange for additional proceeds of $1.9 million. The aggregate original issue discounts of $65,000 will be allocated to interest expense, ratably, over the life of the note. These notes matured between January 11, 2019 and October 22, 2019.

All principal and accrued interest on the notes are redeemable at any time, in whole or in part, at the option of Global. The redemption amount may be paid in cash or converted into shares of common stock at a variable conversion price equal to the lowest of (i) 85% of the average VWAP for the shares over the prior 5 trading days, (ii) the closing bid price for the shares on the prior trading day, or (iii) $2.00 per share, at the option of the Company.

The notes may not be converted, and shares of common stock may not be issued pursuant to the notes, if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 9.99% of the outstanding shares of common stock.

On October 22, 2018, Global sold one of its notes to another investor. As a result of this sale, $250,000 in principal and $26,000 of accrued interest were assigned to the new investor and is no longer considered secured debt. Please refer to Note 12 for further discussion of the assignment. This note is redeemable in stock, at the discretion of the Company, under the same conversion terms described above.

The following table summarizes the conversion activity of this note:

Conversion Period	Principal Converted	Interest Converted	Common Shares Issued
Q1 2018	$ 1,250,000	$ -	2,450,981
Q2 2018	176,000	-	1,035,295
Q1 2019	115,000	-	9,595,327
	$ 1,541,000	$ -	13,081,603

Since conversions began in the first quarter of 2018, the interest associated with conversions has been added back into the principal of the notes. The following table summarizes the activity of adding the interest to principal:

Period	**Interest converted to Principal**
Q1 2018	$ 96,281
Q2 2018	44,237
Q1 2019	171,152
	$ 311,670

All the notes issued in accordance with the note purchase and exchange agreement dated November 30, 2017 are secured by a security interest on substantially all of the Company's assets, bear interest at a rate of 12% per annum and contain standard and customary events of default including but not limited to: (i) failure to make payments when due under the notes, and (ii) bankruptcy or insolvency of the Company. There are no registration rights applicable to the notes.

Payments on these notes have not occurred in accordance with the agreement and, as of the date of this filing, these notes are due upon demand. As of December 31, 2019, the aggregate principal and interest balance of the Notes were $5.0 million and $734,000, respectively.

Subsequent to the period of this report, the amounts owed to Global were exchanged for a new note. Refer to the *Global Exchange Agreement* section of Note 19. Subsequent Events for further discussion

Pursuant to a number of factors outlined in ASC Topic 815, *Derivatives and Hedging*, the conversion option in the notes were deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. The fair value measurements rely primarily on Company-specific inputs and the Company's own assumptions. With the absence of observable inputs, the Company determined these recurring fair value measurements reside primarily within Level 3 of the fair value hierarchy. The derivative associated with the notes approximates management's estimate of the fair value of the embedded derivative liability based on using a Monte Carlo simulation following a Geometric Brownian Motion with the following assumptions identified below.

The following table summarizes the derivative liability transactions for these notes:

Derivative Liability Balance as of December 31, 2017	**$ 4,897,178**
Additional derivative liability on new notes	1,446,156
Derivative Liability assigned to another investor	(119,039)
Change in fair value of derivative liability	(2,690,434)
Derivative Liability Balance as of December 31, 2018	**3,533,861**
Change in fair value of derivative liability	(1,522,886)
Derivative Liability Balance as of December 31, 2019	**$ 2,010,975**

The aggregate derivative value of the notes was $3.5 million as of December 31, 2018. This value was derived from Management's fair value assessment using the following assumptions: annual volatility range between of 56% to 65%, present value discount rate of 12%, and a dividend yield of 0%.

The derivative liability associated with the notes is subject to revaluation on a quarterly basis to reflect the market value change of the embedded conversion option. During 2019, Management conducted quarterly fair value assessment of the embedded derivative associated with the notes using the following assumptions: annual volatility range of 42% to 72%, present value discount rate of 12%, and a dividend yield of 0%. As a result of the fair value assessments, the Company recorded an aggregate net gain of $1.5 million for the year ended December 31, 2019, as "Change in fair value of derivatives and gain/loss on extinguishment of liabilities, net" in the Consolidated Statements of Operations to properly reflect the fair value of the embedded derivative of $2.0 million as of December 31, 2019.

St. George Secured Convertible Notes

On May 8, 2018, the Company, entered into a note purchase agreement with St. George Investments LLC ("St. George"), for the private placement of a $575,000 secured convertible promissory note. The Company received $500,000 in aggregate proceeds for the note in two tranches and recorded an original issue discount of $50,000 and debt financing costs of $25,000. The original issue discount and the financing costs will be recognized as interest expense, ratably, over the life of the note.

On November 5, 2018, the Company entered into a second securities purchase agreement with St. George, for the private placement of a $1.2 million secured convertible promissory note ("Company Note"). On November 7, 2018, the Company received $200,000 of gross proceeds from the offering of the Company Note. The Company may receive additional cash proceeds of up to an aggregate of $800,000 through cash payments made from time to time by St George of principal and interest under the eight Investor Notes. The aggregate principal amount of the Company Note is divided into nine tranches, which tranches correspond to (i) the cash funding received on November 5, 2018 and (ii) the principal amounts of the eight Investor Notes. As of December 2019, the Company had received an additional $800,000 in proceeds and had recorded $1,220,000 in principal related to the Company and Investor Notes. The Company recorded original issue discounts of $200,000 and debt financing costs of $20,000, which will be recognized as interest expense, ratably, over the life of the note. As of December 31, 2019, the closing dates, closing amounts, and proceeds on completed Note tranches are as follows:

Closing Date	Closing Amount	Proceeds
11/7/2018	$ 260,000	$ 200,000
11/19/2018	120,000	100,000
11/30/2018	120,000	100,000
12/7/2018	120,000	100,000
12/17/2018	120,000	100,000
1/3/2019	120,000	100,000
1/17/2019	120,000	100,000
1/30/2019	120,000	100,000
2/8/2019	120,000	100,000

On March 13, 2019, the Company entered into a third securities purchase agreement with St. George, for the private placement of a $365,000 secured convertible promissory note ("Third Note"). The Company recorded original issue discounts of $60,000 and debt financing costs of $5,000, which will be recognized as interest expense, ratably, over the life of the note. As of December 31, 2019, the closing dates, closing amounts, and proceeds on completed Note tranches are as follows:

Closing Date	Closing Amount	Proceeds
3/15/2019	$ 125,000	$ 100,000
3/22/2019	120,000	100,000
4/4/2019	120,000	100,000

Beginning six months from the date of issuance, St. George shall have the option to redeem all or a portion of the amounts outstanding under the Company Note. At St. George's option, redemption amounts are payable by the Company in cash or in the form of shares of the common stock. Conversions into common stock shall be calculated using a variable conversion price equal to 60% of the average of the two lowest closing bid prices for the shares over the prior 10-day trading period immediately preceding the conversion.

Shares of common stock may not be issued pursuant to these notes if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 9.99% of the outstanding shares of common stock.

As of December 31, 2019, no principal or interest had been paid or converted, and the aggregate principal and interest balance of the Notes were $2.2 million and $307,000, respectively.

Subsequent to the date of this report, the debt with St. George was settled by the assignment of the debt to another investor. Refer to the *Debt Assignments* section of Note 19. Subsequent Events for further discussion.

Pursuant to a number of factors outlined in ASC Topic 815, *Derivatives and Hedging*, the conversion option in the notes were deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. The fair value measurements rely primarily on Company-specific inputs and the Company's own assumptions. With the absence of observable inputs, the Company determined these recurring fair value measurements reside primarily within Level 3 of the fair value hierarchy. The derivative associated with the notes approximates management's estimate of the fair value of the embedded derivative liability based on using a Monte Carlo simulation following a Geometric Brownian Motion with the following assumptions identified below.

The following table summarizes the derivative liability transactions for these notes:

Derivative Liability Balance as of December 31, 2017	$ -
Additional derivative liability on new notes	1,664,553
Change in fair value of derivative liability	1,628,139
Derivative Liability Balance as of December 31, 2018	**3,292,692**
Additional derivative liability on new notes	1,752,197
Change in fair value of derivative liability	(2,592,138)
Derivative Liability Balance as of December 31, 2019	**$ 2,452,751**

The aggregate derivative value of the notes was $3.3 million as of December 31, 2018. This value was derived from Management's fair value assessment using the following assumptions: annual volatility range between of 56% to 71%, present value discount rate of 12%, and a dividend yield of 0%.

The aggregate derivative value, at issuance, of the $845,000 notes issued during the year ended December 31, 2019 was $2.5 million. This value was derived from Management's fair value assessment using the following assumptions: annual volatility range between of 35% to 82%, present value discount rate of 12%, and a dividend yield of 0%.

The derivative liability associated with the notes is subject to revaluation on a quarterly basis to reflect the market value change of the embedded conversion option. During 2019, Management conducted quarterly fair value assessment of the embedded derivative associated with the notes using the following assumptions: annual volatility range of 35% to 82%, present value discount rate of 12%, and a dividend yield of 0%. As a result of the fair value assessments, the Company recorded a net loss of $305,000 for three months ended December 31, 2019, and an aggregate net gain of $2.6 million for the year ended December 31, 2019, as "Change in fair value of derivatives and gain/loss on extinguishment of liabilities, net" in the Consolidated Statements of Operations to properly reflect the fair value of the embedded derivative of $2.5 million as of December 31, 2019.

NOTE 11. PROMISSORY NOTES

The following table provides a summary of the activity of the Company's non-convertible, unsecured, promissory notes:

	Investor 1	**Investor 2**	**Total**
Promissory Notes Principal Balance at December 31, 2017	**$ 494,437**	**$ 200,000**	**$ 694,437**
New principal	-	850,000	850,000
Notes exchanged	-	(200,000)	(200,000)
Promissory Notes Principal Balance at December 31, 2018	494,437	850,000	1,344,437
Less: remaining discount	-	(104,583)	(104,583)
Promissory Notes, net of discount, at December 31, 2018	**494,437**	**745,417**	**1,239,854**
New principal	-	615,000	615,000
Notes exchanged	-	(850,000)	(850,000)
Promissory Notes Principal Balance at December 31, 2019	494,437	615,000	1,109,437
Less: remaining discount	-	(16,666)	(16,666)

Promissory Notes, net of discount, at December 31, 2019	**$ 494,437**	**$ 598,334**	**$ 1,092,771**

Offering of Unsecured, Non-Convertible Notes to Investor 1

During October 2016, the Company received $420,000 from a private investor "Investor 1". These funds, along with $250,000 of additional funding, were rolled into a promissory note, executed on January 17, 2017, in the amount of $700,000 issued with a discount of $30,000 which was charged to interest expense ratably over the term of the note. The note bears interest at 12% per annum and matured on July 17, 2017. Principal and interest on this note were payable at maturity. This note is not convertible into equity shares of the Company and is unsecured.

On June 30, 2017, the Company and Investor 1 agreed to a 12-month payment plan on the balance of this promissory note. Interest will continue to accrue on this note at 12% per annum and payments of approximately $62,000 were to be made monthly beginning in July 2017. The Company has not made the payments according to this payment plan, and the note is payable upon demand.

As of December 31, 2019, $206,000 of principal and $45,000 of interest had been paid on this note. The outstanding principal and accrued interest balances on the note as of December 31, 2019 were $494,000 and $146,000, respectively.

Offering of Unsecured, Non-Convertible Notes to Investor 2

On June 6, 2018, the Company initiated a non-convertible, unsecured promissory note with Investor 2 for an aggregate principal amount of $315,000. The promissory note was issued with an original issue discount of $55,000, which was recorded as interest expense ratably over the term of the note, resulting in proceeds to the company of $260,000, that was received in several tranches between February 2018 and April 2018. This note had an interest rate of 12% per annum and matured on June 6, 2019. On May 2, 2019, the Company entered into a securities exchange agreement with Investor 2 to surrender and exchange this promissory note in exchange for a convertible note. The promissory note had a principal balance of $315,000 and an accrued interest balance of $40,000. See Note 12 for further discussion on the new convertible notes.

On July 24, 2018, the Company initiated a non-convertible, unsecured promissory note with Investor 2 for an aggregate principal amount of $115,000. The promissory note was issued with an original issue discount of $28,000, which was recorded as interest expense ratably over the term of the note, resulting in proceeds to the company of $87,000, which was received in several tranches between May 2018 and June 2018. This note had an interest rate of 12% per annum and matured on January 24, 2019. On March 11, 2019, the Company entered into a securities exchange agreement with Investor 2 to surrender and exchange this promissory note in exchange for a convertible note. The promissory note had a principal balance of $115,000 and an accrued interest balance of $11,000. See Note 12 for further discussion on the new convertible notes.

On September 10, 2018, the Company initiated a non-convertible, unsecured promissory note with Investor 2 for an aggregate principal amount of $120,000. The promissory note was issued with an original issue discount of $20,000, which was recorded as interest expense ratably over the term of the note, resulting in proceeds to the company of $100,000, which was received in several tranches between June 2018 and September 2018. This note had an interest rate of 12% per annum and matured on March 10, 2019. March 11, 2019, the Company entered into a securities exchange agreement with Investor 2 to surrender and exchange this promissory note in exchange for a convertible note. The promissory note had a principal balance of $120,000 and an accrued interest balance of $8,000. See Note 12 for further discussion on the new convertible notes.

On December 31, 2018, the Company initiated a non-convertible, unsecured promissory note with Investor 2 for an aggregate principal amount of $300,000. The promissory note was issued with an original issue discount of $75,000, which was recorded as interest expense ratably over the term of the note, resulting in proceeds to the company of $225,000, which was received in several tranches between September 2018 and December 2018. This note had an interest rate of 12% per annum and matured on June 30, 2019. On August 22, 2019, the Company entered into a securities exchange agreement with Investor 2 to surrender and exchange this promissory note in exchange for a convertible note. The promissory note had a principal balance of $300,000 and an accrued interest balance of $28,000. See Note 12 for further discussion on the new convertible notes

On March 11, 2019, the Company initiated a non-convertible, unsecured promissory note with Investor 2 for an aggregate principal amount of $60,000. The promissory note was issued with an original issue discount of $10,000, which was recorded as interest expense ratably over the term of the note, resulting in proceeds to the company of $50,000, which was received in several tranches between January 2019 and March 2019. This note bears interest at 12% per annum and matured on September 11, 2019. All principal and interest was payable upon maturity. As of December 31, 2019, the remaining principal and interest on this note were $60,000 and $6,000, respectively.

On May 14, 2019, the Company initiated a non-convertible, unsecured promissory note with Investor 2 for an aggregate principal amount of $100,000. The promissory note was issued with an original issue discount of $25,000, which will be recorded as interest expense ratably over the term of the note, resulting in proceeds to the company of $75,000, which was received in several tranches between March 2019 and May 2019. This note bears interest at 12% per annum and matured on October 11, 2019. All principal and interest was payable upon maturity. As of December 31, 2019, the remaining principal and interest on this note were $100,000 and $8,000, respectively.

On July 8, 2019, the Company initiated a non-convertible, unsecured promissory note with Investor 2 for an aggregate principal amount of $125,000. The promissory note was issued with an original issue discount of $25,000, which will be recorded as interest expense ratably over the term of the note, resulting in proceeds to the company of $100,000. This note bears interest at 12% per annum and matures on January 8, 2020. All principal and interest is payable upon maturity. As of December 31, 2019, the remaining principal and interest on this note were $125,000 and $7,000, respectively.

On August 8, 2019, the Company initiated a non-convertible, unsecured promissory note with Investor 2 for an aggregate principal amount of $65,000. The promissory note was issued with an original issue discount of $20,000, which will be recorded as interest expense ratably over the term of the note, resulting in proceeds to the company of $45,000. This note bears interest at 12% per annum and matures on February 8, 2020. All principal and interest is payable upon maturity. As of December 31, 2019, the remaining principal and interest on this note were $65,000 and $3,000, respectively.

On September 9, 2019, the Company initiated a non-convertible, unsecured promissory note with Investor 2 for an aggregate principal amount of $150,000. The promissory note was issued with an original issue discount of $40,000, which will be recorded as interest expense ratably over the term of the note, resulting in proceeds to the company of $110,000, which was received in several tranches during September 2019. This note bears interest at 12% per annum and matures on March 9, 2020. All principal and interest is payable upon maturity. As of December 31, 2019, the remaining principal and interest on this note were $120,000 and $5,000, respectively.

Between August 22, 2019 and November 4, 2019, the Company received $115,000 proceeds from Investor 2, which had not yet been documented into a note. The Company is accruing interest on these funds at a rate of 12% per annum and has accrued $3,000 as of December 31, 2019. Subsequent to the date of this report, these funds were documented into a note. Refer to Note 19. Subsequent Events for further information.

As of December 31, 2019, the aggregate outstanding principal and interest for Investor 2 was $615,000 and $28,000, respectively.

Subsequent to the date of this report, the debt with Investor 2 was settled by the assignment of the debt to another investor. Refer to the *Debt Assignments* section of Note 19. Subsequent Events for further discussion.

NOTE 12. CONVERTIBLE NOTES

The following table provides a summary of the activity of the Company's unsecured, convertible, promissory notes:

	Principal Balance 12/31/2017	New Notes	Notes assigned or exchanged	Notes converted	Principal Balance 12/31/2018	Less: Discount Balance	Net Principal Balance 12/31/2018
October 2016 Notes	**$ 330,000**	$ -	$ -	$ -	**$ 330,000**	$ -	**$ 330,000**
St. George Notes	**1,705,833**	-	-	(606,600)	**1,099,233**	(96,177)	**1,003,056**
BayBridge Notes	**565,000**	-	270,000	(772,500)	**62,500**	(62,100)	**400**
Bellridge Notes	**-**	150,000	550,000	(245,000)	**455,000**	(123,360)	**331,640**
Power Up Notes	**-**	225,000	-	-	**225,000**	(110,621)	**114,379**
EMA Note	**-**	75,000	-	-	**75,000**	(1,753)	**73,247**
	$ 2,600,833	$ 450,000	$ 820,000	$(1,624,100)	**$ 2,246,733**	$ (394,011)	**$ 1,852,722**

	Principal Balance 12/31/2018	New Notes/ Adjustments	Notes assigned or exchanged	Notes converted	Principal Balance 12/31/2019	Less: Discount Balance	Net Principal Balance 12/31/2019
October 2016 Notes	**$ 330,000**	$ -	$ -	$ -	**$ 330,000**	$ -	**$ 330,000**
St. George Notes	**1,099,233**	(172,500)	-	(309,070)	**617,663**	-	**617,663**
BayBridge Notes	**62,500**	-	1,160,000	(281,900)	**940,600**	(408,333)	**532,267**
Bellridge Notes	**455,000**	510,000	(226,000)	(243,000)	**496,000**	(382,500)	**113,500**
Power Up Notes	**225,000**	149,500	-	(267,680)	**106,820**	(26,566)	**80,254**
EMA Note	**75,000**	-	(75,000)	-	**-**	-	**-**
Widjaja Note	**-**	330,000	-	-	**330,000**	(1)	**329,999**
GS Capital Notes	**-**	178,568	75,000	(84,068)	**169,500**	(44,167)	**125,333**
	$ 2,246,733	$ 995,568	$ 934,000	$(1,185,718)	**$ 2,990,583**	$ (861,567)	**$ 2,129,016**

October 2016 Convertible Notes

On October 5, 2016, the Company entered into a securities purchase agreement with a private investor for the private placement of $330,000 principal amount of convertible notes. At Closing, the Company sold and issued $330,000 principal amount of convertible notes in exchange for $330,000 of gross proceeds.

The convertible notes matured on December 31, 2018 and had an interest rate of 6% per annum, subject to increase to 24% per annum upon the occurrence and continuance of an event of default. Principal and accrued interest on the convertible notes is payable upon demand, the default interest rate has not been designated by the investor.

All principal and accrued interest on the convertible notes is convertible at any time, in whole or in part, at the option of the investor, into shares of common stock at a variable conversion price equal to 80% of the lowest closing bid price of the Company's common stock for the fifteen consecutive trading day period prior to the conversion date. After the six-month anniversary of the issuance of any convertible note, the conversion price for such note shall thereafter be equal to 50% of the lowest closing bid price of the Company's common stock for the fifteen consecutive trading day period prior to the conversion date.

The convertible notes contain standard and customary events of default including but not limited to: (i) failure to make payments when due under the convertible notes; and (ii) bankruptcy or insolvency of the Company.

Outstanding principal and accrued interest on the convertible notes were $330,000 and $65,000, respectively as of December 31, 2019.

Pursuant to a number of factors outlined in ASC Topic 815, *Derivatives and Hedging*, the conversion option in the notes were deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. The fair value measurements rely primarily on Company-specific inputs and the Company's own assumptions. With the absence of observable inputs, the Company determined these recurring fair value measurements reside primarily within Level 3 of the fair value hierarchy. The derivative associated with the notes approximates management's estimate of the fair value of the embedded derivative liability based on using a Monte Carlo simulation following a Geometric Brownian Motion with the following assumptions identified below.

The following table summarizes the derivative liability transactions for this note:

Derivative Liability Balance as of December 31, 2017	**$**	**572,643**
Additional derivative liability on new notes		-
Change in fair value of derivative liability		303,838
Derivative Liability Balance as of December 31, 2018		**876,481**
Change in fair value of derivative liability		(317,987)
Derivative Liability Balance as of December, 2019	**$**	**558,494**

As of December 31, 2018, the fair value of the derivative liability was $876,481. This value was derived from Management's fair value assessment using the following assumptions: annual volatility of 63%, present value discount rate of 12%, and a dividend yield of 0%.

The derivative liability associated with the note is subject to revaluation on a quarterly basis to reflect the market value change of the embedded conversion option. During 2019, Management conducted quarterly fair value assessment of the embedded derivative associated with the notes using the following assumptions: annual volatility range of 44% to 72%, present value discount rate of 12%, and a dividend yield of 0%. As a result of the fair value assessments, the Company recorded an aggregate net gain of $318,000 for the year ended December 31, 2019, as "Change in fair value of derivatives and gain/loss on extinguishment of liabilities, net" in the Consolidated Statements of Operations to properly reflect the fair value of the embedded derivative of $558,000 as of December 31, 2019.

St. George Convertible Note

On September 8, 2017, the Company entered into a securities purchase agreement with St. George Investments, LLC ("St. George") for the private placement of $1,725,000 principal amount of the Company's original issue discount convertible notes.

On September 11, 2017, the Company sold and issued a $1.7 million principal convertible note to St. George in exchange for $1.5 million of gross proceeds and paid $20,000 in financing costs. The original issue discount of $225,000, and the financing costs, were charged to interest expense, ratably, over the life of the note.

This note matured on March 11, 2019. The note does not bear interest in the absence of an event of default. The note is due upon demand and an interest rate has not been designated by St. George.

For the first six months after the issuance of the convertible note, the Company was to make monthly cash repayment on the note of approximately $96,000. Thereafter, St. George may request that the Company make monthly partial redemptions of the note up to $150,000 per month. If St. George does not request the full $150,000 redemption amount in any one month, the unused portion of such monthly redemption amount can be added to future monthly redemption amounts; however, in no event, can the amount requested for any one month exceed $275,000.

Redemption amounts are payable by the Company in cash. Beginning ten months after the issuance of the convertible note, cash redemption payments by the Company will be subject to a 15% redemption premium. The Company recorded an estimated cash premium of $173,000, at inception, which has been charged to interest, ratably, over the life of the note. During the year ended December 31,2019, the Company reversed the estimated cash payment premium of $173,000, due to the possibility of payment in cash being extremely unlikely.

Beginning six months after the issuance of the convertible note, the Company also has the option (subject to customary equity conditions) to pay redemption amounts in the form of shares of common stock. Payments in the form of shares would be calculated using a variable conversion price equal to the lower of (i) 85% of the average VWAP for the shares over the prior five trading days or (ii) the closing bid price for the shares on the prior trading day.

On May 1, 2018, effective as of April 3, 2018, in lieu of making the December 2017 through March 2018 cash payments, the Company agreed to amend the variable conversion price formula outlined in the securities purchase agreement. As amended, payments in the form of shares would be calculated using a variable conversion price equal to the lower of (i) 60% of the lowest VWAP for the shares during the prior five trading days or (ii) the closing bid price for the shares on the prior trading day.

All principal and accrued interest on the convertible note is convertible at any time, in whole or in part, at the option of St. George into shares of common stock at a fixed conversion price of $4.00 per share.

The convertible note contains standard and customary events of default including but not limited to: (i) failure to make payments when due under the Note; and (ii) bankruptcy or insolvency of the Company. Upon the occurrence of an event of default, the convertible note will begin to bear interest at the rate of 22% per annum. In addition, upon the occurrence of an event of default, St. George has the option to increase the outstanding balance of the convertible note by 25%. The default provisions have not been designated by St. George.

In connection with the closing under the securities purchase agreement, the Company issued 37,500 unregistered shares of common stock to St. George as an origination fee. The closing stock price on the date of close was $1.70 resulting in an interest expense of $64,000 being recorded as of the date of close.

The convertible note may not be converted, and shares of common stock may not be issued pursuant to the convertible note if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 4.99% of the outstanding shares of common stock.

As of December 31, 2019, cash payments of $192,000 had been made on the convertible note, and $916,000 had been converted into 3.4 billion shares of the Company's common stock. The remaining balance on the note was $618,000 as of December 31, 2019.

The following table summarizes the conversion activity of this note:

Conversion Period	**Principal Converted**	**Interest Converted**	**Common Shares Issued**
Q1 2018	$ 75,000	$ -	187,500
Q2 2018	316,600	-	2,082,778
Q3 2018	102,500	-	3,142,333
Q4 2018	112,500	-	10,437,046
Q1 2019	106,750	-	58,503,244
Q2 2019	59,320	-	86,636,364
Q3 2019	89,000	-	457,222,222
Q4 2019	54,000	-	540,000,000
	$ 915,670	$ -	1,158,211,487

Subsequent to the date of this report, the debt with St. George was settled by the assignment of the debt to another investor. Refer to the *Debt Assignments* section of Note 19. Subsequent Events for further discussion.

Pursuant to a number of factors outlined in ASC Topic 815, *Derivatives and Hedging*, the conversion option in the notes were deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. The fair value measurements rely primarily on Company-specific inputs and the Company's own assumptions. With the absence of observable inputs, the Company determined these recurring fair value measurements reside primarily within Level 3 of the fair value hierarchy. The derivative associated with the notes approximates management's estimate of the fair value of the embedded derivative liability based on using a Monte Carlo simulation following a Geometric Brownian Motion with the following assumptions identified below.

The following table summarizes the derivative liability transactions for this note:

Derivative Liability Balance as of December 31, 2017	**$**	**394,280**
Change in fair value of derivative liability		665,720
Derivative Liability Balance as of December 31, 2018		**1,060,000**
Change in fair value of derivative liability		(507,223)
Derivative Liability Balance as of December 31, 2019	**$**	**552,777**

As of December 31, 2018, the derivative liability was $1.1 million. This value was derived from Management's fair value assessment using the following assumptions: annual volatility of 52%, present value discount rate of 12%, and a dividend yield of 0%.

The derivative liability associated with the note is subject to revaluation on a quarterly basis to reflect the market value change of the embedded conversion option. During 2019, Management conducted quarterly fair value assessment of the embedded derivative associated with the notes using the following assumptions: annual volatility range of 44% to 52%, present value discount rate of 12%, and a dividend yield of 0%. As a result of the fair value assessments, the Company recorded an aggregate net gain of $507,000 for the year ended December 31, 2019, as "Change in fair value of derivatives and gain/loss on extinguishment of liabilities, net" in the Consolidated Statements of Operations to properly reflect the fair value of the embedded derivative of $553,000 as of December 31, 2019.

Baybridge Convertible Note

On September 7, 2018, the Company, entered into a securities exchange agreement ("Exchange Agreement 2") Baybridge Capital Fund LP ("Baybridge).

Pursuant to the terms of Exchange Agreement 2, Baybridge agreed to surrender and exchange an outstanding promissory note with a principal balance of $200,000, plus accrued interest of $17,000, for a convertible note with an aggregate principal amount of $270,000 and an original issue discount of $53,000 ("Exchange Note 2").

Exchange Note 2 is unsecured, has no applicable registration rights, has an interest rate of 12% per annum, matured on September 7, 2019 and contains standard and customary events of default including but not limited to: (i) failure to make payments when due under the Exchange Note, and (ii) bankruptcy or insolvency of the Company. Principal and interest are payable upon maturity.

Baybridge shall have the right, from and after the date of issuance of Exchange Note 2, and then at any time until Exchange Note 2 is fully paid, to convert any outstanding and unpaid principal and interest into shares of common stock at a variable conversion price equal to the lesser of (i) a price equal to $0.15, or (ii) 70% of the lowest traded price for the shares over the prior five trading days.

As of December 31, 2019, Exchange Note 2 had been converted in full; 32.2 million shares of common stock had been issued.

On March 11, 2019, as described in Note 10, the Company, entered into two additional securities exchange agreements ("Exchange Agreements 3 & 4") with Baybridge.

Pursuant to the terms of Exchange Agreement 3, Baybridge agreed to surrender and exchange an outstanding promissory notes with a principal balance of $115,000, plus accrued interest of $11,000, for a convertible note with an aggregate principal amount of $150,000 and an original issue discount of $24,000 ("Exchange Note 3").

As of December 31, 2019, the principal and interest balances on Exchange Note 3 were $150,000 and $15,000, respectively.

Pursuant to the terms of Exchange Agreement 4, Baybridge agreed to surrender and exchange an outstanding promissory notes with a principal balance of $120,000, plus accrued interest of $8,000, for a convertible note with an aggregate principal amount of $160,000 and an original issue discount of $32,000 ("Exchange Note 4").

On May 2, 2019, as described in Note 10, the Company, entered into an additional securities exchange agreement (“Exchange Agreement 5”) with Baybridge.

Pursuant to the terms of Exchange Agreement 5, Baybridge agreed to surrender and exchange an outstanding promissory notes with a principal balance of $315,000, plus accrued interest of $38,000, for a convertible note with an aggregate principal amount of $450,000 and an original issue discount of $97,000 (“Exchange Note 5”).

As of December 31, 2019, the principal and interest balances on Exchange Note 5 were $450,000 and $36,000, respectively.

On August 22, 2019, as described in Note 10, the Company, entered into an additional securities exchange agreement ("Exchange Agreement 6") with Baybridge.

Pursuant to the terms of Exchange Agreement 6, Baybridge agreed to surrender and exchange an outstanding promissory notes with a principal balance of $300,000, plus accrued interest of $23,000, for a convertible note with an aggregate principal amount of $400,000 and an original issue discount of $77,000 ("Exchange Note 6").

The Exchange Notes are unsecured, have no applicable registration rights, bear interest at a rate of 12% per annum, mature twelve months from the date of issuance, and contain standard and customary events of default including but not limited to: (i) failure to make payments when due under the Exchange Note, and (ii) bankruptcy or insolvency of the Company. Principal and interest are payable upon maturity.

Baybridge shall have the right, from the date of issuance of the Exchange Notes, and then at any time until the Exchange Notes are fully paid, to convert any outstanding and unpaid principal and interest into shares of common stock at a variable conversion price equal to the lesser of (i) a price equal to $0.0005, or (ii) 65% of the lowest traded price for the shares over the prior five trading days.

Conversion to shares of common stock may not be issued pursuant to the Exchange Notes if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 4.99% of the outstanding shares of common stock.

During the years ended December 31, 2019 and 2018, aggregate principal of $489,400 and interest of $12,710 had been converted into 998.4 million shares of common stock and no cash payments of principal or interest had been made on these exchange notes. As of December 31, 2019, Exchange Notes 2 and 4 had been converted in full and the aggregate remaining principal and accrued interest balances on Exchange Notes 3, 5, and 6 was $941,000 and $68,000, respectively.

The following table summarizes the conversion activity of these notes:

Conversion Period	**Principal Converted**	**Interest Converted**	**Common Shares Issued**
Q4 2017	$ 275,000	$ -	404,412
Q1 2018	105,000	20,717	493,007
Q2 2018	408,000	6,090	2,435,823
Q3 2018	52,000	4,428	1,547,452
Q4 2018	207,500	4,303	16,008,198
Q1 2019	90,500	3,278	47,400,806
Q2 2019	88,500	2,079	141,822,223
Q3 2019	86,000	2,261	616,247,346
Q4 2019	16,900	789	176,886,700
	$ 1,329,400	$ 43,945	1,003,245,967

Subsequent to the date of this report, the debt with Baybridge was settled by the assignment of the debt to another investor. Refer to the *Debt Assignments* section of Note 19. Subsequent Events for further discussion.

Pursuant to a number of factors outlined in ASC Topic 815, *Derivatives and Hedging*, the conversion option in the notes were deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. The fair value measurements rely primarily on Company-specific inputs and the Company's own assumptions. With the absence of observable inputs, the Company determined these recurring fair value measurements reside primarily within Level 3 of the fair value hierarchy. The derivative associated with the notes approximates management's estimate of the fair value of the embedded derivative liability based on using a Monte Carlo simulation following a Geometric Brownian Motion with the following assumptions identified below.

The following table summarizes the derivative liability transactions for these notes:

Derivative Liability Balance as of December 31, 2017	**$**	**542,733**
Additional derivative liability on new notes		276,179
Change in fair value of derivative liability		(677,380)
Liability extinguished		(27,686)
Derivative Liability Balance as of December 31, 2018		**113,846**
Additional derivative liability on new notes		1,376,670
Change in fair value of derivative liability		(406,077)
Liability extinguished		(152,301)
Derivative Liability Balance as of December 31, 2019	**$**	**932,138**

At December 31, 2018, the derivative liability associated with Exchange Note 2 was $114,000. This value was derived from Management's fair value assessment using the following assumptions: annual volatility of 74%, present value discount rate of 12%, and a dividend yield of 0%. During the first quarter of 2019, Exchange Note 2 was converted in full and the derivative liability balance of $114,000 was written off as a gain as "Change in fair value of derivatives and gain/loss on extinguishment of liabilities, net" in the Consolidated Statements of Operations.

The conversion options in Exchange Notes 3 & 4 were deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance based on the following assumptions: annual volatility of 67%, present value discount rate of 12%, and a dividend yield of 0%, and appropriately recorded that value as a derivative liability. At March 11, 2019, the derivative liability associated with Exchange Notes 3 & 4 was $311,000. The fair value of the derivative was greater than the face value at issuance and the difference of $57,000 was charged to interest expense at issuance. The remaining debt discount of $254,000 will be charged to interest expense ratably over the life of the note. During the second and third quarters of 2019, Exchange Note 4 was converted in full and the remaining derivative liability balance of $38,000 was written off as a gain as "Change in fair value of derivatives and gain/loss on extinguishment of liabilities, net" in the Consolidated Statements of Operations.

The conversion option in Exchange Note 5 was deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance based on the following assumptions: annual volatility of 68% present value discount rate of 12%, and a dividend yield of 0%, and appropriately recorded that value as a derivative liability. At May 2, 2019, the derivative liability associated with Exchange Note 5 was $500,000. The fair value of the derivative was greater than the face value at issuance and the difference of $150,000 was charged to interest expense at issuance. The remaining debt discount of $350,000 will be charged to interest expense ratably over the life of the note.

The conversion option in Exchange Note 6 was deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance based on the following assumptions: annual volatility of 64% present value discount rate of 12%, and a dividend yield of 0%, and appropriately recorded that value as a derivative liability. At May 2, 2019, the derivative liability associated with Exchange Note 6 was $566,000. The fair value of the derivative was greater than the face value at issuance and the difference of $323,000 was charged to interest expense at issuance. The remaining debt discount of $243,000 will be charged to interest expense ratably over the life of the note.

The derivative liabilities associated with the Exchange Notes are subject to revaluation on a quarterly basis to reflect the market value change of the embedded conversion option. During 2019, Management conducted quarterly fair value assessment of the embedded derivative associated with the notes using the following assumptions: annual volatility range of 46% and 69%, present value discount rate of 12%, and a dividend yield of 0%. As a result of the fair value assessments, the Company recorded an aggregate net gain of $406,000 for the year ended December 31, 2019, as "Change in fair value of derivatives and gain/loss on extinguishment of liabilities, net" in the Consolidated Statements of Operations to properly reflect the fair value of the embedded derivatives associated with Exchange Notes 3, 5, and 6 of $932,000 as of December 31, 2019.

Bellridge Convertible Notes

On July 25, 2018, the Company, entered into a securities exchange agreement (the “Exchange Agreement”) with Bellridge Capital, LP ("Bellridge"). Pursuant to the terms of the Exchange Agreement, the investor agreed to surrender and exchange a promissory note with a principal balance of $275,000 and accrued interest of $20,000. In exchange, the Company issued to the investor an unsecured convertible note with an aggregate principal amount of $300,000 (the “Exchange Note”). The original issue discount of $5,000 was charged to interest expense upon issuance. The Exchange Note is not secured, has an interest rate of 12% per annum, and matured on January 25, 2019. From and after the date of issuance of this note and then at any time until the note is fully paid, the investor had the right to convert any outstanding and unpaid principal into shares of the Company's common stock at a variable conversion price equal to the lesser of (i) a price equal to $0.20, or (ii) 80% of the lowest traded price for the shares over the prior ten trading days. This Exchange Note was fully converted during the year ended December 31, 2019.

On September 14, 2018, the Company, issued a new $150,000 convertible note in a private placement to Bellridge. The note is not secured, contains no registration rights, has an interest rate of 12% per annum, matured on September 14, 2019, and contains standard and customary events of default including but not limited to: (i) failure to make payments when due under the note, and (ii) bankruptcy or insolvency of the Company. All principal and interest on the note are due upon maturity. Bellridge shall have the option to convert all or a portion of the amounts outstanding under the note, into shares of the Company's common stock. Conversions into common stock shall be calculated using a variable conversion price equal to the lesser of (i) $0.20 or (ii) 70% of the lowest closing bid price for the shares over the prior five-day trading period immediately preceding the conversion.

On October 18, 2018, as discussed in Note 10, Global assigned one of its notes to Bellridge. The note had an outstanding principal balance of $250,000 and an accrued interest balance of $26,000. The note matured on October 18, 2019, and all principal and interest is due upon demand. The principal and accrued interest on the note are redeemable at any time, in whole or in part, at the option of Bellridge. The redemption amount may be paid in cash or converted into shares of common stock at a variable conversion price equal to the lowest of (i) 85% of the average VWAP for the shares over the prior five trading days, (ii) the closing bid price for the shares on the prior trading day, or (iii) $0.20 per share, at the option of the Company.

On October 22, 2019, the Company and Bellridge entered into an exchange agreement to convert the remaining principal and interest of $226,000 and $51,000, respectively, on the Bellridge notes, into a new note with a principal balance of $450,000. The note is not secured, contains no registration rights, has an interest rate of 10% per annum, matures on October 22, 2020, and contains standard and customary events of default including but not limited to: (i) failure to make payments when due under the note, and (ii) bankruptcy or insolvency of the Company. All principal and interest on the note are due upon maturity. Bellridge shall have the option to convert all or a portion of the amounts outstanding under the note, into shares of the Company's common stock. Conversions into common stock shall be calculated using a variable conversion price equal to the lesser of (i) $0.0005 or (ii) 70% of the lowest traded price for the shares over the prior ten-day trading period immediately preceding the conversion. The original issue discount of $173,000 will be charged to interest, ratably, over the life of the note.

On October 22, 2019, the Company and Bellridge entered into a convertible promissory note with a principal balance of $60,000, in exchange for proceeds of $40,000. The note is not secured, contains no registration rights, has an interest rate of 10% per annum, matures on October 22, 2020, and contains standard and customary events of default including but not limited to: (i) failure to make payments when due under the note, and (ii) bankruptcy or insolvency of the Company. All principal and interest on the note are due upon maturity. Bellridge shall have the option to convert all or a portion of the amounts outstanding under the note, into shares of the Company's common stock. Conversions into common stock shall be calculated using a variable conversion price equal to the lesser of (i) $0.0005 or (ii) 70% of the lowest traded price for the shares over the prior ten-day trading period immediately preceding the conversion. The original issue discount of $20,000 will be charged to interest, ratably, over the life of the note.

Shares of common stock may not be issued pursuant to any of these notes if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 4.99% of the outstanding shares of Common Stock.

During the years ended December 31, 2019 and 2018, an aggregate principal of $488,000 and interest of $29,668, on the Bellridge convertible notes had been converted into 1.1 billion shares of common stock and no cash payments of principal or interest had been made. The aggregate principal and accrued interest balances as of December 31, 2019 were $496,000 and $63,000, respectively.

The following table summarizes the conversion activity of these notes:

Conversion Period	Principal Converted	Interest Converted	Common Shares Issued
Q3 2018	$ 137,500	$ 2,104	3,716,105
Q4 2018	107,500	4,000	7,554,399
Q1 2019	65,615	4,507	38,696,339
Q2 2019	47,385	3,874	68,142,087
Q3 2019	89,000	9,779	529,061,862
Q4 2019	41,000	5,404	464,037,300
	$ 488,000	$ 29,668	1,111,208,092

Subsequent to the date of this report, the debt with Bellridge was partially converted into common stock and the remainder was settled by the assignment of the debt to another investor. Refer to the Note Conversions and Debt Assignments sections of Note 19. Subsequent Events for further discussion.

Pursuant to a number of factors outlined in ASC Topic 815, *Derivatives and Hedging*, the conversion option in the notes were deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. The fair value measurements rely primarily on Company-specific inputs and the Company's own assumptions. With the absence of observable inputs, the Company determined these recurring fair value measurements reside primarily within Level 3 of the fair value hierarchy. The derivative associated with the notes approximates management's estimate of the fair value of the embedded derivative liability based on using a Monte Carlo simulation following a Geometric Brownian Motion with the following assumptions identified below.

The following table summarizes the derivative liability transactions for this note:

Derivative Liability Balance as of December 31, 2017	**$ -**
Additional derivative liability on new notes	236,004
Derivative liability assigned	119,039
Change in fair value of derivative liability	131,236
Derivative Liability Balance as of December 31, 2018	**486,279**
Additional derivative liability on new notes	726,195
Liability extinguished	(45,218)
Change in fair value of derivative liability	(422,645)
Derivative Liability Balance as of December 31, 2019	**$ 744,611**

At December 31, 2018, the derivative liability associated with these notes was $486,000. This value was derived from Management's fair value assessment using the following assumptions: annual volatility range between 40% and 74%, present value discount rate of 12%, and a dividend yield of 0%. During 2019, the exchange note and the note issued in September 2018 had been converted in full and the derivative liability balances of $44,000 and $1,000 were written off as a gain as "Change in fair value of derivatives and gain/loss on extinguishment of liabilities, net" in the Consolidated Statements of Operations.

The conversion option in Exchange Note issued on October 22, 2019 was deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance based on the following assumptions: annual volatility of 50% present value discount rate of 12%, and a dividend yield of 0%, and appropriately recorded that value as a derivative liability. At October 22, 2019, the derivative liability associated with the Exchange Note was $651,000. The fair value of the derivative was greater than the face value at issuance and the difference of $374,000 was charged to interest expense at issuance. The remaining debt discount of $277,000 will be charged to interest expense ratably over the life of the note.

The conversion option in the Convertible Promissory Note issued on October 22, 2019 was deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance based on the following assumptions: annual volatility of 50% present value discount rate of 12%, and a dividend yield of 0%, and appropriately recorded that value as a derivative liability. At October 22, 2019, the derivative liability associated with the Convertible Promissory Note was $75,000. The fair value of the derivative was greater than the face value at issuance and the difference of $35,000 was charged to interest expense at issuance. The remaining debt discount of $40,000 will be charged to interest expense ratably over the life of the note.

The derivative liability associated with these notes is subject to revaluation on a quarterly basis to reflect the market value change of the embedded conversion option. During 2019, Management conducted quarterly fair value assessment of the embedded derivative associated with the notes using the following assumptions: annual volatility range of 42% and 72%, present value discount rate of 12%, and a dividend yield of 0%. As a result of the fair value assessments, the Company recorded an aggregate net loss of $422,645 for the year ended December 31, 2019, as "Change in fair value of derivatives and gain/loss on extinguishment of liabilities, net" in the Consolidated Statements of Operations to properly reflect the fair value of the embedded derivative of $744,611 as of December 31, 2019.

Power Up Convertible Notes

During 2018, the Company entered into three securities purchase agreements with Power Up Lending Group, LTD ("Power Up"), for the private placement of three convertible notes with an aggregate principal amount of $225,000.

On February 14, 2019, the Company entered into a fourth securities purchase agreement with Power Up, for the private placement of a fourth convertible note with a principal value of $55,000.

On March 7, 2019, the Company entered into a fifth securities purchase agreement with Power Up, for the private placement of a fifth convertible note with a principal value of $53,000.

On May 3, 2019, the Company entered into a sixth securities purchase agreement with Power Up, for the private placement of a sixth convertible note with a principal value of $43,000.

These notes are unsecured, bear interest at a rate of 8% per annum and mature on twelve months following the date of issuance; principal and interest is due upon maturity. In the event of default, the interest rate per annum increases to 22%.

Beginning in six months after issuance, Power Up shall have the option to convert all or a portion of the amounts outstanding under the convertible note, into shares of the Company's common stock. Conversions into common stock shall be calculated using a variable conversion price equal to 65% of the average of the three lowest closing bid prices for the shares over the prior ten-day trading period immediately preceding the conversion.

Shares of common stock may not be issued pursuant to any of these notes if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 4.99% of the outstanding shares of Common Stock.

As of December 31, 2019, the three 2018 notes had been converted in full. The aggregate principal and interest converted was $267,680 and $9,000, respectively, into 578.8 million shares of common stock. No cash payments of principal or interest had been made. The aggregate principal and accrued interest balances as of December 31, 2019 were $106,820 and $9,347, respectively.

The following table summarizes the conversion activity of these notes:

Conversion Period	Principal Converted	Interest Converted	Common Shares Issued
Q1 2019	$ 182,500	$ 7,300	95,014,902
Q2 2019	42,500	1,700	47,155,556
Q3 2019	14,600	-	155,824,176
Q4 2019	28,080	-	280,800,000
	$ 267,680	$ 9,000	578,794,634

Subsequent to the date of this report, the debt with Power Up was settled by the assignment of the debt to another investor. Refer to the *Debt Assignments* section of Note 19. Subsequent Events for further discussion.

Pursuant to a number of factors outlined in ASC Topic 815, *Derivatives and Hedging*, the conversion option in the notes were deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. The fair value measurements rely primarily on Company-specific inputs and the Company's own assumptions. With the absence of observable inputs, the Company determined these recurring fair value measurements reside primarily within Level 3 of the fair value hierarchy. The derivative associated with the notes approximates management's estimate of the fair value of the embedded derivative liability based on using a Monte Carlo simulation following a Geometric Brownian Motion with the following assumptions identified below.

The following table summarizes the derivative liability transactions for this note:

Derivative Liability Balance as of December 31, 2017	**$ -**
Additional derivative liability on new notes	246,860
Change in fair value of derivative liability	264,277
Derivative Liability Balance as of December 31, 2018	**511,137**
Additional derivative liability on new notes	222,593
Liability extinguishment	(511,137)
Change in fair value of derivative liability	(105,893)
Derivative Liability Balance as of December 31, 2019	**$ 116,700**

At December 31, 2018, the derivative liability associated with these notes was $511,137. This value was derived from Management's fair value assessment using the following assumptions: annual volatility range between 70% to 76%, present value discount rate of 12%, and a dividend yield of 0%. During the first half of 2019, the three December 2018 notes were converted in full and the derivative liability balance of $511,137 was written off as a gain as "Change in fair value of derivatives and gain/loss on extinguishment of liabilities, net" in the Consolidated Statements of Operations.

The conversion option in the fourth note was deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance based on the following assumptions: annual volatility of 65%, present value discount rate of 12%, and a dividend yield of 0%, and appropriately recorded that value as a derivative liability. At February 14, 2019, the derivative liability associated with the fourth note was $44,000. The debt discount will be charged to interest expense ratably over the life of the note.

The conversion option in the fifth note was deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance based on the following assumptions: annual volatility of 67%, present value discount rate of 12%, and a dividend yield of 0%, and appropriately recorded that value as a derivative liability. At March 7, 2019, the derivative liability associated with the fifth note was $87,000. The fair value of the derivative was greater than the face value at issuance and the difference

of $34,000 was charged to interest expense at issuance. The remaining debt discount of $53,000 will be charged to interest expense ratably over the life of the note.

The conversion option in the sixth note was deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance based on the following assumptions: annual volatility of 69%, present value discount rate of 12%, and a dividend yield of 0%, and appropriately recorded that value as a derivative liability. At May 3, 2019, the derivative liability associated with the sixth note was $92,000. The fair value of the derivative was greater than the face value at issuance and the difference of $49,000 was charged to interest expense at issuance. The remaining debt discount of $43,000 will be charged to interest expense ratably over the life of the note.

The derivative liability associated with these notes is subject to revaluation on a quarterly basis to reflect the market value change of the embedded conversion option. During 2019, Management conducted quarterly fair value assessment of the embedded derivative associated with the notes using the following assumptions: annual volatility range of 46% to 71%, present value discount rate of 12%, and a dividend yield of 0%. As a result of the fair value assessments, the Company recorded an aggregate net gain of $106,000 for the year ended December 31, 2019, as "Change in fair value of derivatives and gain/loss on extinguishment of liabilities, net" in the Consolidated Statements of Operations to properly reflect the fair value of the embedded derivative of $116,700 as of December 31, 2019.

EMA Convertible Note

On August 29, 2018, the Company, entered into a securities purchase agreement with EMA Financial, LLC, for the private placement of a $75,000 convertible note. The note is unsecured, bears interest at a rate of 8% per annum, and matured on May 29, 2019; principal and interest was due upon maturity. In the event of default, the interest rate per annum increases to 22%.

Beginning in March 2019, EMA shall have the option to convert all or a portion of the amounts outstanding under the note, into shares of the Company's Common Stock. Conversions into Common Stock shall be calculated using a variable conversion price equal to 65% of the average of the three lowest closing bid prices for the shares over the prior ten-day trading period immediately preceding the conversion.

Shares of common stock may not be issued pursuant to the note if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 4.99% of the outstanding shares of common stock.

On February 22, 2019, EMA assigned this note to GS Capital (see below). Per the terms of this agreement, $75,000 of principal and $3,000 of accrued interest were sold to the new investor and the Company paid $27,000 to EMA as a pre-payment penalty.

Pursuant to a number of factors outlined in ASC Topic 815, *Derivatives and Hedging*, the conversion option in the notes were deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. The fair value measurements rely primarily on Company-specific inputs and the Company’s own assumptions. With the absence of observable inputs, the Company determined these recurring fair value measurements reside primarily within Level 3 of the fair value hierarchy. The derivative associated with the notes approximates management’s estimate of the fair value of the embedded derivative liability based on using a Monte Carlo simulation following a Geometric Brownian Motion with the following assumptions identified below.

At December 31, 2018, the derivative liability associated with the note was $240,156. This value was derived from Managements fair value assessment using the following assumptions: annual volatility of 87%, present value discount rate of 12%, and a dividend yield of 0%. On February 22, 2019, this derivative value was assigned to GS Capital (see below).

The following table summarizes the derivative liability transactions for this note:

Derivative Liability Balance as of December 31, 2017	**$**	**-**
Additional derivative liability on new notes		3,945
Change in fair value of derivative liability		236,211
Derivative Liability Balance as of December 31, 2018		**240,156**
Liability assigned		(240,156)
Derivative Liability Balance as of December 31, 2019	**$**	**-**

Widjaja Convertible Note

On January 11, 2019, the Company entered into a note purchase with Jason Widjaja ("Widjaja"), for the private placement of a $330,000 convertible promissory note, in exchange for $330,000 of gross proceeds. The note is unsecured, bears interest at 12% per annum, matures on January 11, 2020, and contains standard and customary events of default including but not limited to: (i) failure to make payments when due under the note, and (ii) bankruptcy or insolvency of the Company. Principal and interest on the note will be payable upon maturity.

At any time after inception of the note, until fully paid, Widjaja shall have the option to convert all or a portion of amounts outstanding under the note into shares of the Company's common stock. Conversions into common stock shall be calculated using a variable conversion price equal to 80% of the lowest closing bid price for the shares over the prior five trading days immediately preceding the conversion date.

There are no registration rights applicable to the note. Shares of common stock may not be issued pursuant to the note if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 19.99% of the outstanding shares of the Company's common stock.

As of December 31, 2019, no principal and no interest had been converted into shares of common stock and no cash payments of principal or interest had been made. The aggregate principal and accrued interest balances as of December 31, 2019 were $330,000 and $38,000, respectively.

Subsequent to the date of this report, the debt with Widjaja was settled by the assignment of the debt to another investor. Refer to the *Debt Assignments* section of Note 19. Subsequent Events for further discussion.

Pursuant to a number of factors outlined in ASC Topic 815, *Derivatives and Hedging*, the conversion option in the notes were deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. The fair value measurements rely primarily on Company-specific inputs and the Company's own assumptions. With the absence of observable inputs, the Company determined these recurring fair value measurements reside primarily within Level 3 of the fair value hierarchy. The derivative associated with the notes approximates management's estimate of the fair value of the embedded derivative liability based on using a Monte Carlo simulation following a Geometric Brownian Motion with the following assumptions identified below.

The following table summarizes the derivative liability transactions for this note:

Derivative Liability Balance as of December 31, 2018	**$**	**-**
Additional derivative liability on new notes		219,634
Change in fair value of derivative liability		(52,792)
Derivative Liability Balance as of December 31, 2019	**$**	**166,842**

The conversion option in the Widjaja note was deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance based on the following assumptions: annual volatility of 64%, present value discount rate of 12%, and a dividend yield of 0%, and appropriately recorded that value as a derivative liability. At January 11, 2019, the derivative liability associated with the Widjaja note was $220,000.

The derivative liability associated with this note is subject to revaluation on a quarterly basis to reflect the market value change of the embedded conversion option. During 2019, Management conducted quarterly fair value assessment of the embedded derivative associated with the notes using the following assumptions: annual volatility range of 43% to 73%, present value discount rate of 12%, and a dividend yield of 0%. As a result of the fair value assessments, the Company recorded an aggregate net gain of $53,000 for the year ended December 31, 2019, as "Change in fair value of derivatives and gain/loss on extinguishment of liabilities, net" in the Consolidated Statements of Operations to properly reflect the fair value of the embedded derivative of $166,842 as of December 31, 2019.

GS Capital Convertible Note

On February 22, 2019, the Company sold and issued to GS Capital Partners, LLC ("GS") a $108,000 aggregate principal amount unsecured convertible promissory note in exchange for $75,000 of gross proceeds, $6,000 in financing costs, and $27,000 of premium associated with the assignment of the EMA note (see above). On August 26, 2019, the Company sold and issued to GS, an additional unsecured convertible promissory note in the amount of $71,000.

These notes are unsecured, bear interest at 8% per annum, matures twelve months from the date of issuance, and contain standard and customary events of default including but not limited to: (i) failure to make payments when due under the note, and (ii) bankruptcy or insolvency of the Company. Principal and interest on the note will be payable upon maturity. There are no registration rights applicable to the note.

At any time after inception of the note until fully paid, GS shall have the option to convert all or a portion of amounts outstanding under the note into shares of the Company's common stock. Conversions into common stock shall be calculated using a variable conversion price equal to 65% of the average of the three lowest closing bid prices for the shares over the prior ten day trading period immediately preceding the conversion.

Shares of common stock may not be issued pursuant to the note if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 4.99% of the outstanding shares of the Company's common stock.

As of December 31, 2019, principal of $84,068 and interest of $5,766 had been converted into 473.4 million shares of common stock and no cash payments of principal or interest had been made. The aggregate principal and accrued interest balances as of December 31, 2019 were $170,000 and $9,000, respectively.

The following table summarizes the conversion activity of these notes:

Conversion Period	**Principal Converted**	**Interest Converted**	**Common Shares Issued**
Q2 2019	$ 15,000	$ 763	17,321,692
Q3 2019	57,718	4,284	335,425,736
Q4 2019	11,350	719	120,697,800
	$ 84,068	$ 5,766	473,445,228

Subsequent to the date of this report, the debt with GS Capital was settled by the assignment of the debt to another investor. Refer to the *Debt Assignments* section of Note 19. Subsequent Events for further discussion.

Pursuant to a number of factors outlined in ASC Topic 815, *Derivatives and Hedging*, the conversion option in the notes were deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. The fair value measurements rely primarily on Company-specific inputs and the Company's own assumptions. With the absence of observable inputs, the Company determined these recurring fair value measurements reside primarily within Level 3 of the fair value hierarchy. The derivative associated with the notes approximates management's estimate of the fair value of the embedded derivative liability based on using a Monte Carlo simulation following a Geometric Brownian Motion with the following assumptions identified below.

The following table summarizes the derivative liability transactions for this note:

Derivative Liability Balance as of December 31, 2018	**$**	**-**
Liability assigned		240,156
Additional derivative liability on new notes		210,092
Change in fair value of derivative liability		(268,385)
Derivative Liability Balance as of December 31, 2019	**$**	**181,863**

The derivative liability assigned to GS from EMA, at February 22, 2019, was $240,000.

The conversion option in the February 22, 2019 GS note was deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance based on the following assumptions: annual volatility of 66%, present value discount rate of 12%, and a dividend yield of 0%, and appropriately recorded that value as a derivative liability. At February 22, 2019, the derivative liability associated with the GS note was $101,000. The fair value of the derivative was greater than the face value at issuance and the difference of $26,000 was charged to interest expense at issuance. The remaining debt discount of $75,000 will be charged to interest expense ratably over the life of the note.

.The conversion option in the August 2019 GS note was deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance based on the following assumptions: annual volatility of 64%, present value discount rate of 12%, and a dividend yield of 0%, and appropriately recorded that value as a derivative liability. At August 26, 2019, the derivative liability associated with the GS note was $109,000. The fair value of the derivative was greater than the face value at issuance and the difference of $44,000 was charged to interest expense at issuance. The remaining debt discount of $65,000 will be charged to interest expense ratably over the life of the note.

The derivative liability associated with these notes is subject to revaluation on a quarterly basis to reflect the market value change of the embedded conversion option. During 2019, Management conducted quarterly fair value assessment of the embedded derivative associated with the notes using the following assumptions: annual volatility range of 35% and 70%, present value discount rate of 12%, and a dividend yield of 0%. As a result of the fair value assessments, the Company recorded an aggregate net gain of $268,000 for the year ended December 31, 2019, as "Change in fair value of derivatives and gain/loss on extinguishment of liabilities, net" in the Consolidated Statements of Operations to properly reflect the fair value of the embedded derivative of $182,000 as of December 31, 2019.

NOTE 13. SERIES A PREFERRED STOCK

In June 2013, the Company entered into a Securities Purchase Agreement with an investor to sell an aggregate of $750,000 shares of Series A Preferred Stock at a price of $8.00 per share, resulting in gross proceeds of $6.0 million. This purchase agreement included warrants to purchase up to 13,125 shares of common stock of the Company. The transfer of cash and securities took place incrementally, the first closing occurring on June 17, 2013 with the transfer of 125,000 shares of Series A Preferred Stock and a warrant to purchase 2,187 shares of common stock for $1.0 million. The final closings took place in August 2013, with the transfer of 625,000 shares of Series A Preferred Stock and a warrant to purchase 10,938 shares of common stock for $5.0 million.

Holders of Series A Preferred Stock are entitled to cumulative dividends at a rate of 8% per annum when and if declared by the Board of Directors in its sole discretion. The dividends may be paid in cash or in the form of common stock (valued at 10% below market price, but not to exceed the lowest closing price during the applicable measurement period), at the discretion of the Board of Directors. The dividend rate on the Series A Preferred Stock is indexed to the Company's stock price and subject to adjustment. In addition, the Series A Preferred Stock contains a make-whole provision whereby, conversion or redemption of the preferred stock within 4 years of issuance will require dividends for the full four year period to be paid by the Company in cash or common stock (valued at 10% below market price, but not to exceed the lowest closing price during the applicable measurement period). This make-whole provision expired in June 2017.

The Series A Preferred Stock may be converted into shares of common stock at the option of the Company if the closing price of the common stock exceeds $232, as adjusted, for twenty consecutive trading days, or by the holder at any time. The Company has the right to redeem the Series A Preferred Stock at a price of $8.00 per share, plus any accrued and unpaid dividends, plus the make-whole amount (if applicable). At December 31, 2019, the preferred shares were not eligible for conversion to common shares at the option of the Company. The holder of the preferred shares may convert to common shares at any time, at no cost, at a ratio of 1 preferred share into 1 common share (subject to standard ratable anti-dilution adjustments). Upon any conversion (whether at the option of the Company or the holder), the holder is entitled to receive any accrued but unpaid dividends.

On October 6, 2016, the Series A Holder entered into an exchange agreement with a private investor. Pursuant to the exchange agreement, beginning December 5, 2016, the investor has the option to exchange, from time to time, all or any portion of the October 2016 Convertible Notes (see Note 12) for outstanding shares of Series A Preferred Stock from the Series A Holder.

Except as otherwise required by law (or with respect to approval of certain actions), the Series A Preferred Stock shall have no voting rights. Upon any liquidation, dissolution or winding up of the Company, after payment or provision for payment of debts and other liabilities of the Company, the holders of Series A Preferred Stock shall be entitled to receive, pari passu with any distribution to the holders of common stock of the Company, an amount equal to $8.00 per share of Series A Preferred Stock plus any accrued and unpaid dividends.

During the year ended December 31, 2019, 12,656 shares of Series A Preferred Stock, plus $71,000 of accrued dividends, were converted into 9.8 million shares of common stock at a conversion rate of $0.0072. As of December 31, 2019, there were 48,100 shares of Series A Preferred Stock outstanding and accrued and unpaid dividends of $319,000.

NOTE 14. STOCKHOLDERS' EQUITY (DEFICIT)

Common Stock

At December 31, 2019, the Company had 20.0 billion shares of common stock, $0.0001 par value, authorized for issuance. Each share of common stock has the right to one vote. As of December 31, 2019, the Company had 4,759,161,650 shares of common stock outstanding. The Company has not declared or paid any dividends related to the common stock through December 31, 2019.

Preferred Stock

At December 31, 2019, the Company had 25,000,000 shares of preferred stock, $0.0001 par value, authorized for issuance. Preferred stock may be issued in classes or series. Designations, powers, preferences, rights, qualifications, limitations and restrictions are determined by the Company's Board of Directors. The following table summarizes the designations, shares authorized, and shares outstanding for the Company's Preferred Stock:

Preferred Stock Series Designation	Shares Authorized	Shares Outstanding
Series A	750,000	48,100
Series B-1	2,000	-
Series B-2	1,000	-
Series C	1,000	-
Series D	3,000	-
Series D-1	2,500	-
Series E	2,800	-
Series F	7,000	-
Series G	2,000	-
Series H	2,500	-
Series I	1,000	-
Series J	1,350	-
Series J-1	1,000	-
Series K	20,000	-

Series A Preferred Stock

Refer to Note 13 for Series A Preferred Stock activity.

Series B-1, B-2, C, D, D-1, E, F, G, H, I, J, J-1, and K Preferred Stock

There were no transactions involving the Series B-1, B-2, C, D, D-1, H, I, J, J-1, or K during the years ended December 31, 2019 and 2018.

NOTE 15. EQUITY PLANS AND SHARE-BASED COMPENSATION

Share-Based Compensation: The Company measures share-based compensation cost at the grant date based on the fair value of the award and recognizes this cost as an expense over the grant recipients' requisite service periods for all awards made to employees, officers, directors and consultants.

The share-based compensation expense recognized in the Consolidated Statements of Operations was as follows:

	For the Year Ended December 31, 2019	For the Year Ended December 31, 2018
Research and development	$ -	$ 1,000
Selling, general and administrative	21,000	24,000
Total share-based compensation cost	$ 21,000	$ 25,000

Stock Options: The Company recognized share-based compensation expense for stock options of $21,000 to officers, directors and employees for the year ended December 31, 2019 related to stock option awards, reduced for estimated forfeitures; there was no expense recorded for the year ended December 31, 2019. There were no option grants during the years ended December 31, 2019 and 2018.

As of December 31, 2019, there were no unvested stock options. As of December 31, 2019, 97 shares were vested, and 120 shares remained available for future grants under the Option Plan.

The following table summarizes stock option activity within the Stock Option Plan

	Stock Option Shares	Weighted Average Remaining Contractual Life in Years
Outstanding at December 31, 2017	195	7.32
Granted	-	
Exercised	-	
Canceled	(85)	
Outstanding at December 31, 2018	110	5.18
Granted	-	
Exercised	-	
Canceled	(13)	4.68
Outstanding and Exercisable at December 31, 2019	97	4.68

Restricted Stock: The Company did not recognize share-based compensation expense related to restricted stock grants for the years ended December 31, 2019 and 2018. There were no restricted stock grants for the years ended December 31, 2019 and 2018.

As of December 31, 2019, there was no unrecognized share-based compensation expense from unvested restricted stock, no shares were expected to vest in the future, and 496 shares remained available for future grants under the Restricted Stock Plan.

NOTE 16. INCOME TAXES

The company records income taxes using the liability method. Under this method, deferred tax assets and are computed for the expected future impact of temporary differences between the financial statement and income tax bases of assets and liabilities using current income tax rates and for the expected future tax benefit to be derived from tax loss and tax credit carryforwards. ASC 740 provides detailed guidance for the financial statement recognition, measurement and disclosure of uncertain tax positions recognized in the financial statements. Tax positions must meet a "more-likely-than-not" recognition threshold before a benefit is recognized in the financial statements.

At December 31, 2019, the Company had $233.6 million of cumulative net operating loss carryforwards for federal income tax purposes that were available to offset future taxable income through the year 2037. At December 31, 2019, the Company had $42.6 million of cumulative net operating loss carryforwards for federal income tax purposes that were available to offset future taxable income indefinitely. Under the Internal Revenue Code, the future utilization of net operating losses may be limited in certain circumstances where there is a significant ownership change. The Company prepared an analysis for the year ended December 31, 2012 and determined that a significant change in ownership had occurred as a result of the cumulative effect of the sales of common stock through its offerings. Such change limited the Company's utilizable net operating loss carryforwards to $276.1 million for the year ended December 31, 2019. Available net operating loss carryforwards may be further limited in the event of another significant ownership change.

Deferred income taxes reflect an estimate of the cumulative temporary differences recognized for financial reporting purposes from that recognized for income tax reporting purposes. At December 31, 2019 and 2018, the components of these temporary differences and the deferred tax asset were as follows:

	As of December 31,	
	2019	2018
Deferred Tax Asset		
Accrued Expenses	$ 14,000	$ 30,000
Inventory Allowance	134,000	184,000
Other	11,000	11,000
Stock Based Compensation-Stock Options and Restricted Stock	951,000	1,021,000
Tax effect of NOL carryforward	68,886,000	64,519,000
Depreciation	3,736,000	5,957,000
Amortization	(186,000)	(213,000)
Disallowed interest expense	-	452,000
Warranty reserve	6,000	7,000
Net deferred tax asset	73,552,000	71,968,000
Less valuation allowance	(73,552,000)	(71,968,000)
Net deferred tax asset	$ -	$ -

In assessing the realizability of deferred tax assets, management considers whether it is more likely than not that some portion or all of the deferred tax assets will be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the periods in which those temporary differences become deductible. Management considers the scheduled reversal of deferred tax liabilities, projected future taxable income and tax planning strategies in making this assessment. Based upon the level of historical losses and projections of future taxable income over the periods in which the deferred tax assets are deductible, management believes it is not more-likely-than-not that the Company will realize the benefits of these deductible differences at December 31, 2019. The Company's deferred tax valuation allowance of $73.6 million reflected above is an increase of $1.6 million from the valuation allowance reflected as of December 31, 2018 of $72.0 million.

As of December 31, 2019, the Company has not recorded a liability for uncertain tax positions. The Company recognizes interest and penalties related to uncertain tax positions in income tax (benefit)/expense. No interest and penalties related to uncertain tax positions were accrued at December 31, 2019.

The Company's effective tax rate for the years ended December 31, 2019 and 2018 differs from the statutory rate due to the following (expressed as a percentage of pre-tax income):

	2019	2018
Federal statutory rate	21.0 %	21.0 %
State statutory rate	4.1 %	3.6 %
Change in rate	(11.0)%	(0.8)%
Permanent tax differences	(0.3)%	(0.1)%
Derivative/Warrant Revaluation	26.7 %	- %
Debt Discount	(0.7)%	- %
Loss on Extinguishment of Liabilities	- %	(3.5)%
Deferred true-ups	(7.3)%	(54.2)%
Other	- %	- %
Change in valuation allowance	(32.5)%	34.0 %
	- %	- %

NOTE 17. COMMITMENTS AND CONTINGENCIES

In May 2019, the Company's former law firm filed suit against the Company in District Court in Adams County Colorado in an effort to collect approximately $1.2 million of unpaid fees (and related interest charges). On September 11, 2020, the Company entered into a settlement agreement (the "Settlement Agreement") with its former law firm. Pursuant to the Settlement Agreement, the Company paid $120,000 on September 23, 2020 as the full and final settlement of all amounts owed between the parties. Following such payment, a satisfaction of an existing judgment in favor of such law firm was filed in Adams County Colorado.

On July 29, 2020, the Company's owned facility at 12300 Grant Street, Thornton, CO 80241 (the "Building") was foreclosed by the Building's first lien holder ("Mortgage Holder") and sold at public auction. The successful bidder for the Building was the Mortgage Holder, at the price of $7.193 million. As a result, the Company's obligations to Mortgage Holder and all of the Company's outstanding real property taxes on the Building were considered fully repaid.

The Company is subject to various legal proceedings, both asserted and unasserted, that arise in the ordinary course of business. The Company cannot predict the ultimate outcome of such legal proceedings or in certain instances provide reasonable ranges of potential losses. However, as of the date of this report, the Company believes that none of these claims will have a material adverse effect on its consolidated financial position or results of operations. In the event of unexpected subsequent developments and given the inherent unpredictability of these legal proceedings, there can be no assurance that the Company's assessment of any claim will reflect the ultimate outcome, and an adverse outcome in certain matters could, from time to time, have a material adverse effect on the Company's consolidated financial position or results of operations in particular quarterly or annual periods.

NOTE 18. RETIREMENT PLAN

On July 1, 2006, the Company adopted a qualified 401(k) plan which provides retirement benefits for all of its eligible employees. Under the plan, employees become eligible to participate at the first entry date, provided they are at least 21 years of age. The participants may elect through salary reduction to contribute up to ceilings established in the Internal Revenue Code. The Company will match 100% of the first six percent of employee contributions. In addition, the Company may make discretionary contributions to the Plan as determined by the Board of Directors. Employees are immediately vested in all salary reduction contributions. Rights to benefits provided by the Company's discretionary and matching contributions vest 100% after the first year of service for all employees hired before January 1, 2010. For employees hired after December 31, 2009, matching contributions vest over a three-year period, one-third per year. Payments for 401(k) matching totaled $37,000 and $109,000 for the years ended December 31, 2019 and 2018, respectively. Payments for 401(k) matching are recorded under "Research, development and manufacturing operations" expense and "Selling, general and administrative" expense in the Consolidated Statements of Operations.

NOTE 19. SUBSEQUENT EVENTS

The Company has been in a dormant status for most of 2020 due to financial constraints as well as delays in reorganization and fund-raising efforts due to the impact of COVID-19. Below is the sequence of January 29 events subsequent to December 31, 2019:

<u>Note Conversions</u>

On April 7, 2020, Bellridge (refer to Note 12. Convertible Notes) converted $23,000 of principal and $1,000 of interest into 235.4 million shares of common stock.

On April 17, 2020, Bellridge (refer to Note 12. Convertible Notes) converted $23,000 of principal and $1,000 of interest into 236.0 million shares of common stock.

<u>Baybridge Capital Promissory Note</u>

On May 1, 2020, $115,000 of proceeds received between September and November of 2019 were documented into a non-convertible promissory note. The promissory note was issued with an original issue discount of $35,000, which will be recorded as interest expense ratably over the term of the note, resulting in a principal balance of $150,000. This note bears interest at 12% per annum and matures on May 1, 2021. All principal and interest is payable upon maturity. Refer to Note 11. Promissory Notes for further discussion on the funds received. This note was settled by the assignment of the debt to another investor. Please refer to the *Debt Assignments* section below for further information.

Penumbra Note

On June 9, 2020, the Company issued to Penumbra Solar Technologies, Inc. ("Penumbra") a $250,000 aggregate principal amount convertible promissory note ("Penumbra Note"). The Company has received $250,000 of gross proceeds from the offering of the Penumbra Note. The aggregate principal amount of the Penumbra Note (together with accrued interest) will mature on June 9, 2021. The Penumbra Note bears interest at a rate of 6% per annum. The interest rate increases to 18% in the event of a default under the Penumbra Note. The Penumbra Note is convertible, at the holder's option, into shares of the Company's Common Stock at a conversion price equal to $0.0001 per share. However, the holder of the Penumbra Note will not have the right to convert any portion of the Penumbra Note if the holder, together with its affiliates, would beneficially own in excess of 4.99% of the number of shares of the Common Stock outstanding immediately after giving effect to its conversion.

Sale and Leaseback of Facility

On July 29, 2020, the Company's owned facility at 12300 Grant Street, Thornton, CO 80241 (the "Building") was foreclosed by the Building's first lien holder ("Mortgage Holder") and sold at public auction. The successful bidder for the Building was the Mortgage Holder, at the price of $7.193 million. As a result, the Company's obligations to Mortgage Holder and all of the Company's outstanding real property taxes on the Building were considered fully repaid.

On September 21, 2020, the Company entered into a lease agreement with 12300 Grant LLC ("Landlord"), an affiliated company of the Mortgage Holder, for approximately 100,000 rentable square feet of the Building (the "Lease"). The Lease term is for 88 months commencing on September 21, 2020 at a rent of $50,000 per month including taxes, insurance and common area maintenance until December 31, 2020. Beginning January 1, 2021, the rent shall adjust to $80,000 per month on a triple net basis and shall increase at an annual rate of 3% per annum until December 31, 2027.

Debt Assignments

During September 2020, a number of the Company's investors entered into assignment agreements to sell their existing debt to a new investor, BD 1 Investment Holding, LLC ("BD 1"). The assignments transferred ownership of the following debts:

- The outstanding principal and interest of $2.16 million and $417,000, respectively, related to the St. George Secured Promissory Notes discussed in Note 10. was assigned to BD 1. The terms of the notes remained the same.
- The outstanding principal and interest of $650,000 and $86,000, respectively, related to the Investor 2 Promissory Notes discussed in Note 11 was assigned to BD 1. The terms of the notes remained the same.
- The outstanding principal of $618,000, related to the St. George Convertible Note discussed in Note 12 was assigned to BD 1. The terms of the note remained the same.
- The outstanding principal and interest of $941,000 and $152,000, respectively, related to the Baybridge Convertible Notes discussed in Note 12 was assigned to BD 1. The terms of the notes remained the same.
- The outstanding principal and interest of $677,000 and 121,000, respectively, related to the Bellridge Convertible Notes discussed in Note 12 was assigned to BD 1. The terms of the notes remained the same.
- The outstanding principal and interest of $107,000 and $16,000, respectively, related to the Power Up Convertible Notes discussed in Note 12 was assigned to BD 1. The terms of the notes remained the same.
- The outstanding principal and interest of $330,000 and $68,000, respectively, related to the Widjaja Convertible Notes discussed in Note 12 was assigned to BD 1. The terms of the notes remained the same.
- The outstanding principal and interest of $170,000 and $19,000, respectively, related to the GS Capital Convertible Notes discussed in Note 12 was assigned to BD 1. The terms of the notes remained the same.

On December 18, 2020, the notes assigned to BD 1 were exchanged into new notes. Please refer to the *BD 1 Exchange Agreement* section below for further information.

On September 9, 2020, the Company entered into a securities exchange agreement (“GI Exchange Agreement”) with Global Ichiban Limited (“GI”). Pursuant to the terms of the GI Exchange Agreement, GI agreed to surrender and exchange all of its existing outstanding promissory notes with an aggregate principal balance of$6,313,387 (including accrued interest). In exchange, the Company issued to GI a secured convertible promissory note with a principal amount of $6,400,000.00 (“GI Exchange Note”).

The GI Exchange Note will mature on September 30, 2022. Principal on the GI Exchange Note, if not converted will be payable in a lump sum on September 30, 2022. The GI Exchange Note will not bear any accrued interest but bears a default interest rate of 18% in the event of a default under the GI Exchange Note.

GI shall have the right, from and after 6 months from the date of issuance of the GI Exchange Note and then at any time until the GI Exchange Note is fully paid, to convert any outstanding and unpaid principal and interest into shares of Common Stock at a variable conversion price equal to 80% of the average closing bid price for the shares over the prior five trading days.

Conversion into shares of Common Stock may not be issued pursuant to the GI Exchange Note if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 4.99% of the Company’s outstanding shares of Common Stock.

The GI Exchange Note is secured by a lien on substantially all of the Company’s assets pursuant to the Security Agreement dated November 30, 2017 (the “Security Agreement”) entered into between the Company and GI.

Settlement Agreements

On September 11, 2020, the Company entered into a settlement agreement (the “Settlement Agreement A”) with a vendor, discussed further in Note 8 Notes Payable. Pursuant to the Settlement Agreement, the Company paid $120,000 on September 23, 2020 as the full and final settlement of all amounts owed between the parties. Following such payment, a satisfaction of an existing judgment in favor of such law firm was filed in Adams County Colorado. The Company will book a gain of approximately $1.1 million relating to the Settlement Agreement.

On September 11, 2020, the Company entered into a settlement agreement (the “Settlement Agreement B”) with a creditor holding a Note Payable, discussed further in Note 8. Notes Payable. Pursuant to the Settlement Agreement, the Company paid $20,000 on September 18, 2020 as the full and final settlement of all amounts owed between the parties. The Company will book a gain of approximately $200,000 relating to the Settlement Agreement.

Series 1A Preferred Stock – Tranche 1 Closing

On September 22, 2020, the Company entered into a securities purchase agreement (“Series 1A SPA”) with Crowdex Investments, LLC (“Crowdex”), for the private placement of up to $5,000,000 of the Company’s newly designated Series 1A Convertible Preferred Stock (“Series 1A Preferred Stock”).

The Company sold 2,000 shares of Series 1A Preferred Stock to Crowdex in exchange for $2,000,000 of gross proceeds at an initial closing under the Series 1A SPA on September 22, 2020.

In November 2020, Crowdex converted 1,200 shares of outstanding Series 1A Preferred Stock into 12,000,000,000 shares of Common Stock.

Crowdex Note

On November 27, 2020, the Company issued to Crowdex a $500,000 unsecured convertible promissory note (“Crowdex Note”) and received $500,000 of gross proceeds from the offering of the Crowdex Note.

BD 1 Exchange Agreement

On December 18, 2020, the Company entered into a securities exchange agreement (“BD1 Exchange Agreement”) with BD 1 Investment Holding LLC (“BD1”). BD1 had previously acquired all of the Company’s existing outstanding unsecured notes (other than notes held by GI and Crowdex) from the original note holders.

Pursuant to the terms of the BD1 Exchange Agreement, BD1 agreed to surrender and exchange all of its outstanding promissory notes with principal balances of approximately $10.4 million (including accrued interest and default penalties). In exchange, the Company issued to BD1 two unsecured convertible notes with an aggregate principal amount of $10,500,000 ("BD1 Exchange Notes"). The BD1 Exchange Notes will mature on December 18, 2025. BD1 has the right, at any time until the BD1 Exchange Notes are fully paid, to convert any outstanding and unpaid principal and interest into shares of Common Stock at a fixed conversion price equal to $0.0001 per share. Accordingly, the Company would issue 105,000,000,000 shares of Common Stock upon a full conversion of the BD 1 Exchange Notes.

Series 1A Preferred Stock – Tranche 2 Closing

On December 31, the Company sold 500 shares of Series 1A Preferred Stock to Crowdex in exchange for the cancellation of the above-mentioned Crowdex Note issued on November 27, 2020. There were no additional cash proceeds from this closing.

On January 4, 2021, the Company entered into a securities purchase agreement ("Series 1ATranche 2 SPA") with TubeSolar AG, a developer of photovoltaic thin-film tubes to enable additional application opportunities in solar power generation compared to conventional solar modules ("TubeSolar"). Pursuant to the Series 1A Tranche 2 SPA, the Company sold 2,500 shares of Series 1A Preferred Stock to TubeSolar and received $2,500,000 of gross proceeds on January 5, 2021. There are no registration rights applicable to the Series 1A Preferred Stock.

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

(Mark One)

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2018

or

☐ TRANSITION REPORT UNDER SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the Transition Period from to

Commission File No. 001-32919

Ascent Solar Technologies, Inc.
(Exact name of registrant as specified in its charter)

Delaware	**20-3672603**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**

12300 Grant Street, Thornton, CO	**80241**
(Address of principal executive offices)	**(Zip Code)**

Registrant's telephone number including area code: 720-872-5000

Securities registered pursuant to Section 12(b) of the Act:

Title of Each Class	Name of Each Exchange on Which Registered
Common Stock, $0.0001 par value per share	OTCBB Market

Securities registered pursuant to Section 12(g) of the Act:

None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☐ No ☒

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Exchange Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). ☒ Yes ☐ No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act:

Large accelerated filer	☐		Accelerated filer	☐
Non-accelerated filer	☐	(Do not check if a smaller reporting company)	Smaller reporting company	☒
			Emerging growth company	☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

As of June 30, 2018, the last business day of the registrant's most recently completed second fiscal quarter, the aggregate market value of the registrant's common stock held by non-affiliates was approximately $3.6 million based upon the last reported sale price of the registrant's common stock on that date as reported by OTCBB Market, operated by OTC Markets Group Inc.

As of April 11, 2019, there were 336,754,571 shares of our common stock issued and outstanding.

ASCENT SOLAR TECHNOLOGIES, INC.
Form 10-K Annual Report
for the Fiscal Year ended December 31, 2018
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FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K includes "forward-looking statements" that involve risks and uncertainties. Forward-looking statements include statements concerning our plans, objectives, goals, strategies, future events, future net sales or performance, capital expenditures, financing needs, plans or intentions relating to acquisitions, business trends and other information that is not historical information and, in particular, appear under headings including "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Business." When used in this Annual Report, the words "estimates," "expects," "anticipates," "projects," "plans," "intends," "believes," "forecasts," "foresees," "likely," "may," "should," "goal," "target," and variations of such words or similar expressions are intended to identify forward-looking statements. All forward-looking statements are based upon information available to us on the date of this Annual Report.

These forward-looking statements are subject to risks, uncertainties and other factors, many of which are outside of our control, that could cause actual results to differ materially from the results discussed in the forward-looking statements, including, among other things, the matters discussed in this Annual Report in the sections captioned "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations." Factors you should consider that could cause these differences are:

- Our limited operating history and lack of profitability;
- Our ability to develop demand for, and sales of, our products;
- Our ability to attract and retain qualified personnel to implement our business plan and corporate growth strategies;
- Our ability to develop sales, marketing and distribution capabilities;
- Our ability to successfully develop and maintain strategic relationships with key partners, including OEMs, system integrators, distributors, retailers and e-commerce companies, who deal directly with end users in our target markets;
- The accuracy of our estimates and projections;
- Our ability to secure additional financing to fund our short-term and long-term financial needs;
- Our ability to maintain the listing of our common stock on the OTCBB Market;
- The commencement, or outcome, of legal proceedings against us, or by us, including ongoing ligation proceedings;
- Changes in our business plan or corporate strategies;
- The extent to which we are able to manage the growth of our operations effectively, both domestically and abroad, whether directly owned or indirectly through licenses;
- The supply, availability and price of equipment, components and raw materials, including the elements needed to produce our photovoltaic modules;
- Our ability to expand and protect the intellectual property portfolio that relates to our consumer electronics, photovoltaic modules and processes;
- Our ability to implement remediation measures to address material weaknesses in internal control;
-

General economic and business conditions, and in particular, conditions specific to consumer electronics and the solar power industry; and

- Other risks and uncertainties discussed in greater detail in the section captioned "Risk Factors."

There may be other factors that could cause our actual results to differ materially from the results referred to in the forward-looking statements. We undertake no obligation to publicly update or revise forward-looking statements to reflect subsequent events or circumstances after the date made, or to reflect the occurrence of unanticipated events, except as required by law.

References to "we," "us," "our," "Ascent," "Ascent Solar" or the "Company" in this Annual Report mean Ascent Solar Technologies, Inc.

PART I

Item 1. Business

Business Overview

Ascent Solar was formed in October 2005 as a development stage company to commercialize flexible photovoltaic ("PV") modules using our proprietary thin film technology. The technology was initially developed at ITN Energy Systems, Inc. ("ITN") beginning in 1994 and subsequently assigned and licensed to us. Our proprietary manufacturing process deposits multiple layers of materials, including a thin film of highly efficient copper-indium-gallium-diselenide ("CIGS") semiconductor material, on a flexible, lightweight, high tech plastic substrate using a roll-to-roll manufacturing process followed by laser patterning the layers to create interconnected PV cells, or PV modules, in a process known as monolithic integration. We believe that our unique technology and manufacturing process, which results in a much lighter, flexible yet durable module package, provides us with unique market opportunities relative to both the crystalline silicon ("c-Si") based PV manufacturers that currently lead the PV market, as well as other thin film PV manufacturers that use substrate materials such as glass, stainless steel or other metals that can be heavier and more rigid than plastics.

We believe that the use of CIGS on a flexible, durable, lightweight, high tech plastic substrate will allow for unique and seamless integration of our PV modules into a variety of applications such as aerospace, defense, transportation and electronic products, as well as other products and applications that may emerge. For markets that place a high premium on weight, such as defense, space, near space, and aeronautic markets, we believe our materials provide attractive increases in power-to-weight ratio, and that our materials have higher power-to-area ratios and voltage-to-area ratios than competing flexible PV thin film technologies. These metrics will be critical as we position ourselves to compete in challenging high value markets such as aerospace where Ascent Solar products can be integrated into satellites, near earth orbiting vehicles, and fixed-wing unmanned aerial vehicles ("UAV").

Product History

In March 2008, we demonstrated initial operating capacity of our first production line by beginning production trials as an end to end integrated process. Initial operating capacity production trials resulted in average thin film device efficiencies of 9.5% and small area monolithically integrated module efficiencies of over 7.0%. During 2008, optimization trials resulted in thin film device efficiencies in the 9.5% to 11.5% range and corresponding module efficiencies in the 7.0% to 9.0% range. The test modules measured approximately 15 centimeters wide by 30 centimeters long. During the first quarter of 2009, we began limited production of monolithically integrated flexible CIGS modules in our initial production line. Our primary business model, at that time, was based upon mass production of solar modules of varying lengths, sizes and configurations. We provided sample modules to potential customers and development partners in various industries to explore integration of our products into new applications.

In July 2009, we obtained independent verification by the U.S. Department of Energy's National Renewable Energy Laboratory ("NREL") that our modules measured 10.4% in conversion efficiency. The modules tested at NREL were approximately 15 centimeters wide by 30 centimeters long. In October 2009, NREL further verified our achievement of a manufacturing milestone of 14.0% cell efficiency as well as a peak efficiency of 11.4% for CIGS modules. Later, in December 2010, we achieved 12.1% module efficiency on the same form factor. In October 2010, we completed internal qualification testing of a flexible packaging solution which successfully passed the rigorous standard of one thousand (1,000) hours of damp heat testing (85% relative humidity and 85° C temperature) guideline set forth by International Electrotechnical Commission ("IEC") 61646 standards for performance and long term reliability of thin film solar modules.

In February 2010, three of our product configurations were certified by an independent laboratory on a variety of U.S. Department of Defense ("DOD") rugged standards known as MIL-STD-810G. In October 2010, we completed full external certification under IEC 61646 at an independent laboratory of a two meter module. Achieving this certification is required for building integrated photovoltaic ("BIPV") and building applied photovoltaic ("BAPV") applications used in commercial, industrial and residential rooftop markets. Certification activities will continue as required as we introduce new products and make changes or improvements to our already certified products.

In 2010, we received an award from R&D Magazine and were recognized as one of the 100 Most Innovative Technologies based on our process of monolithic integration on polyimide substrate. In 2011, Time Magazine selected us as one of the 50 Best Inventions of the year. In 2015 Ascent Solar won its second R&D 100 Award. The 2015 award was given for the development of the MilPak™ platform, a military-grade (MIL-STD-810G tested) and fully integrated solar power generation and storage unit incorporated with a Maximum Peak Power Tracking (MPPT) management system. The MilPak platform is one of the most rugged, yet lightweight, power generation and storage solutions available, both attributes enabled by the use of Ascent's CIGS technology.

In 2012, we evolved our business model to include B2C, solution based, PV integrated consumer electronics to our off grid high value solar power generation strategy. In June of 2012, we launched our new line of consumer products under the EnerPlex™ brand, and introduced our first product, the Surfr™; a battery and solar case for the Apple® iPhone® 4/4S smart phone featuring our ultra-light CIGS thin film technology integrated directly into the case. The case incorporates our ultra-light and thin PV module into a sleek, protective iPhone 4/4S case, along with a thin, life extending, lithium-polymer battery. The case adds minimal weight and size to an iPhone smartphone, yet provides supplemental charging when needed. In August of 2012, we announced the launch of the second version of the Surfr for the Samsung® Galaxy S® III, which provides 85% additional battery life.

In December 2012, we launched the EnerPlex Kickr™ and EnerPlex Jumpr™ product series. The Kickr IV was an extremely portable, compact and durable solar charging device, approximately seven inches by seven inches when folded, and weighs less than half a pound. The Kickr IV provides 6.5 watts of regulated power that can help charge phones, digital cameras, and other small USB enabled devices. The Kickr IV is ideal for outdoor activities such as camping, hiking and mountain climbing as well as daily city use. To complement the Kickr IV, we also released the Jumpr series of portable power banks in December of 2012. The Jumpr series provides a compact power storage solution for those who need to recharge their portable electronics while on the go.

During 2013, the EnerPlex brand rapidly expanded with the addition of two new product series as well as over fifteen new products. In 2013, we introduced further additions to the Jumpr line of portable power banks; releasing the Jumpr Mini and Jumpr Stack in August and the Jumpr Max in September. The latest additions to the Kickr line of portable solar chargers, the Kickr I and Kickr II, were introduced in August at the Outdoor Retailer show. In October 2013, we released our first series of solar integrated backpacks, the EnerPlex Packr™. The Packr is a functional backpack ideal for charging mobile electronic devices while on the go. Also in October of 2013, we introduced the Surfr battery and solar case for the Samsung Galaxy S® 4, and in December 2013, we introduced the Surfr battery and solar case for Apple's iPhone® 5. To complement our flagship product lines, we added an assortment of accessories, all of which can be integrated into the EnerPlex ecosystem of products; the LED wand, which can be easily plugged into a Jumpr power bank to provide hours of light, or the Travel Adaptor, which enables consumers to charge up their Jumpr power banks from a traditional outlet anywhere in the world.

Beginning in 2013, we aggressively pursued new distribution channels for the EnerPlex brand; these activities led to placement in a variety of high-traffic ecommerce venues such as www.amazon.com, www.walmart.com, www.brookstone.com, www.newegg.com, as well as many others including our own e-commerce platform at www.goenerplex.com. The April 2013 placement of EnerPlex products at Fry's Electronics, a US West Coast consumer electronics retailer, represented the company's first domestic retail presence; EnerPlex products were carried in all of Fry's 34 superstores across 9 states.

Throughout 2014, EnerPlex released multiple additions to the Jumpr line of products: including the Jumpr Stack 3, 6 and 9; innovative batteries equipped with tethered micro-USB and Apple Lightning cables with a revolutionary Stack and Charge design, enabling batteries to be charged simultaneously when they are placed on top of one another. Also released in 2014 were the Jumpr Slate series, products which push the boundaries of how thin batteries can be; the Jumpr Slate 10k, at less than 7mm thick was the thinnest lithium polymer battery available when it was released. The Jumpr Slate 5k and 5k Lightning each come with a tethered micro-USB and Lightning cable respectively; freeing consumers from worrying about toting extra cables with them while on the move.

At Outdoor Retailer 2014, EnerPlex debuted the Generatr Series. The Generatr 1200 and Generatr 100 are lithium-ion based, large format batteries. Lighter and smaller than competitors, the Generatr Series are targeted for consumers who require high-capacity, high-output batteries which remain ultra-portable. Also debuted at Outdoor Retailer was the Commandr 20, a high output solar charger designed specifically to integrate with and charge the Generatr series, allowing consumers to stay out longer without needing to charge their Generatr batteries from a traditional power source. In August 2014, the Kickr II+ and IV+ were also announced, these products represent another evolution in the EnerPlex line of solar products; integrated with a 500mAh battery the Kickr II+ and IV+ are able to provide a constant flow of power even when there are intermittent disruptions in sunlight.

During 2015, we reached an agreement with EVINE Live, one of the premier home shopping networks with TV programming that reaches over 87 million US homes to begin selling EnerPlex products during their broadcasts. EnerPlex launched the Generatr S100 and select other products exclusively with EVINE, EnerPlex also launched the Generatr 1200 launched exclusively with EVINE for a limited period. Also during 2015, EnerPlex expanded its relationship with The Cellular Connection to include over 450 Verizon Wireless Premium Retail Stores; launched its products with two world recognized retailers; The Sports Authority and Cabela’s; and launched its products with GovX; the premier online shopping destination for Military, Law Enforcement and Government agencies. Internationally, EnerPlex products became available in the United Kingdom via the brand’s launch with 172 Maplin’s stores throughout the country.

In 2016, EnerPlex launched the new emergency sales vertical, partnering with Emergency Preparedness eCommerce leader, Emergency Essentials, and we announced new breakthroughs in the Company's line of high-voltage solar products, designed specifically for high-altitude and space markets. Also during the first quarter of 2016, the Company announced the launch of select products on the GSA Advantage website; allowing Federal employees, including members of all branches of the US Military, to directly purchase Ascent and EnerPlex products including: the MilPak E, Commandr 20, Kickr 4 and WaveSol™ solar modules.

In January 2017, Ascent was awarded a contract to supply high-voltage SuperLight thin-film CIGS PV blankets. These 50W, fully laminated, flexible blankets were manufactured using a new process that was optimized for high performance in near-space conditions at elevated temperatures, and are custom designed for easy modular integration into series and parallel configurations to achieve the desired voltage and current required for such application.

In February 2017 Ascent announced the discontinuation of our EnerPlex consumer business by disposing of the EnerPlex brand, and related intellectual properties and trademarks, to our battery product supplier, Sun Pleasure Co. Limited ("SPCL"). This transaction was completed in an effort to better allocate our resources and to continue to focus on our core strength in the high-value specialty PV market. Following the transfer, Ascent will no longer be producing or selling Enerplex-branded consumer products. Ascent will focus on its photovoltaic business and will supply solar PV products to SPCL, supporting the continuous growth of EnerPlex with Ascent's proprietary and award-winning thin-film solar technologies and products.

During the third quarter of 2017, Ascent Solar was selected by Energizer to develop and supply solar panels for their PowerKeep line of solar products, and in November 2017, Ascent introduced the next generation of our USB-based portable power systems with the XD™ series. The first product introduced was the XD-12 which, like previous products, is a folding, lightweight, easily stowable, PV system with USB power regulation. Unique to this generation of PV portable power is more PV power (12 Watts) and a 2.0 Amp smart USB output to enable the XD-12 to charge most smartphones, tablets, and USB-enabled devices as fast as a wall outlet. The enhanced smart USB circuit works with the device to be charged so that the device can determine the maximum power it is able to receive from the XD-12, and ensures the best possible charging performance directly from the sun.

Also in 2017, for a space customer, Ascent manufactured a new micro-module, approximately 12.8mm x 50mm (0.5in x 2.0in) in size that is ideal for both laboratory-scale environmental testing, and for subsequent integration into flight experiments.

In February 2018, the Company introduced the second product in our XD series. Delivering up to 48 Watts of solar power, the durable and compact Ascent XD-48 Solar Charger is the ideal solution for charging many portable electronics and off-grid power systems. The XD-48's versatility allows it to charge both military and consumer electronics directly from the sun wherever needed. Like the XD-12, the XD-48 has a compact and portable design, and its rugged, weather-resistant construction withstands shocks, drops, damage and even minor punctures to power through the harshest conditions.

In March 2018, Ascent successfully shipped to a European based customer for a lighter-than-air, helium-filled airship project based on our newly developed ultra-light modules with substrate material than half of the thickness of our standard modules.

We continue to design and manufacture PV integrated consumer electronics as well as portable power applications for commercial and military users. Due to the high durability enabled by the monolithic integration employed by our technology, the capability to customize modules into different form factors and the industry leading light weight and flexibility provided by our modules, we believe that the potential applications for our products are numerous.

Commercialization and Manufacturing Strategy

We manufacture our products by affixing a thin CIGS layer to a flexible, plastic substrate using a large format, roll-to-roll process that permits us to fabricate our flexible PV modules in an integrated sequential operation. We use proprietary monolithic integration techniques which enable us to form complete PV modules with little to no costly back end assembly of inter cell connections. Traditional PV manufacturers assemble PV modules by bonding or soldering discrete PV cells together. This manufacturing step typically increases manufacturing costs and at times proves detrimental to the overall yield and reliability of the finished product. By reducing or eliminating this added step using our proprietary monolithic integration techniques, we believe we can achieve cost savings in, and increase the reliability of, our PV modules. All tooling necessary for us to meet our near term production requirements is installed in our Thornton, Colorado plant. In 2012, we further revised our strategy to focus on applications for emerging and high-value specialty PV markets, including off grid, aerospace, military and defense and consumer oriented products.

We plan to continue the development of our current PV technology to increase module efficiency, improve our manufacturing tooling and process capabilities and reduce manufacturing costs. We also plan to continue to take advantage of research and development contracts to fund a portion of this development.

Advantages of CIGS on a Flexible Plastic Substrate

Thin film PV solutions differ based on the type of semiconductor material chosen to act as a sunlight absorbing layer, and also on the type of substrate on which the sunlight absorbing layer is affixed. To the best of our knowledge, we believe we are the only company in the world currently focused on commercial scale production of PV modules using CIGS on a flexible, plastic substrate with monolithic integration. We utilize CIGS as a semiconductor material because, at the laboratory level, it has a higher demonstrated cell conversion efficiency than amorphous silicon ("a-Si") and cadmium telluride ("CdTe"). We also believe CIGS offers other compelling advantages over both a-Si and CdTe, including:

- *CIGS versus a-Si:* Although a-Si, like CIGS, can be deposited on a flexible substrate, its conversion efficiency, which already is generally much lower than that of CIGS, measurably degrades when it is exposed to ultraviolet light, including natural sunlight. To mitigate such degradation, manufacturers of a-Si solar cells are required to implement measures that add cost and complexity to their manufacturing processes.

- *CIGS versus CdTe:* Although CdTe modules have achieved conversion efficiencies that are generally comparable to CIGS in production, we believe CdTe has never been successfully applied to a flexible substrate on a commercial scale. We believe the use of CdTe on a rigid, transparent substrate, such as glass, makes CdTe unsuitable for a number of the applications. We also believe CIGS can achieve higher conversion efficiencies than CdTe in production.

Our choice of substrate material further differentiates us from other thin film PV manufacturers. We believe the use of a flexible, lightweight, insulating substrate that is easier to install provides clear advantages for our target markets, especially where rigid substrates are unsuitable. We also believe our use of a flexible, plastic substrate provides us significant cost advantages because it enables us to employ monolithic integration techniques on larger components, which we believe are unavailable to manufacturers who use flexible, metal substrates. Accordingly, we are able to significantly reduce part count, thereby reducing the need for costly back end assembly of inter cell connections. As the only company, to our knowledge, focused on the commercial production of PV modules using CIGS on a flexible, plastic substrate with monolithic integration, we believe we have the opportunity to address the consumer electronics, defense, aerospace, transportation, off grid, portable power and other weight-sensitive markets with transformational high quality, value added product applications. It is these same unique features and our overall manufacturing process that enables us to produce consumer products that enables our consumer products to be extremely robust, light and flexible.

Competitive Strengths

We believe we possess a number of competitive strengths that provide us with an advantage over our competitors.

- ***We are a pioneer in CIGS technology with a proprietary, flexible, lightweight, high efficiency PV thin film product that positions us to penetrate a wide range of attractive high value added markets such as consumer products, off grid, portable power, transportation, defense, aerial, and other markets.*** By applying CIGS to a flexible plastic substrate, we have developed a PV module that is efficient, lightweight and flexible; with the highest power-to-weight ratio in at-scale commercially available solar. The market for electronic components, such as electronic packages, casings and accessories, as well as defense portable power systems, transportation integrated applications and space and near-space solar power application solutions represent a significant premium market for the company. Relative to our thin film competitors, we believe our advantage in thin film CIGS on plastic technology provides us with a superior product offering for these strategic market segments.

- ***We have the ability to manufacture PV modules for different markets and for customized applications without altering our production processes.*** Our ability to produce PV modules in customized shapes and sizes, or in a variety of shapes and sizes simultaneously, without interrupting production flow, provides us with flexibility in addressing target markets and product applications, and allows us to respond quickly to changing market conditions. Many of our competitors are limited by their technology and/or their manufacturing processes to a more restricted set of product opportunities.

- ***Our integrated, roll-to-roll manufacturing process and proprietary monolithic integration techniques provide us a potential cost advantage over our competitors.*** Historically, manufacturers have formed PV modules by manufacturing individual solar cells and then interconnecting them. Our large format, roll-to-roll manufacturing process allows for integrated continuous production. In addition, our proprietary monolithic integration techniques allow us to utilize laser patterning to create interconnects, thereby creating PV modules at the same time we create PV cells. In so doing, we are able to reduce or eliminate an entire back end processing step, saving time as well as labor and manufacturing costs relative to our competitors.

- ***Our lightweight, powerful, and durable solar panels provide a performance advantage over our competitors.*** For consumer applications where a premium is placed on the weight and profile of the product, our ability to integrate our PV modules into portable packages and cases offers the customer a lightweight and durable solution for all their portable electronics.

- ***Our proven research and development capabilities position us to continue the development of next generation PV modules and technologies.*** Our ability to produce CIGS based PV modules on a flexible plastic substrate is the result of a concerted research and development effort that began more than twenty years ago. We continue to pursue research and development in an effort to drive efficiency improvements in our current PV modules and to work toward next generation technologies and additional applications.

- ***Our manufacturing process can be differentiated into two distinct functions; a front end module manufacturing process and a back end packaging process.*** Our ability to produce finished unpackaged rolls of CIGS material for shipment worldwide to customers for encapsulation and integration into various products enhances our ability to work with partners internationally and domestically.

Markets and Marketing Strategy

In 2012, we modified our strategic focus away from large scale utility projects and rooftop applications to consumer products and high-value specialty solar markets. This new strategy enables us to fully leverage the unique advantages of our technology including flexibility, durability and attractive power to weight and power to area performance. It furthermore enables us to offer unique, differentiated solutions in large markets with less competition, and more attractive pricing. In the second half of 2012, we launched our EnerPlex line of personal power, portable solar solutions and accessories. This represented a significant paradigm shift for us and moved us into the realm of supplying complete consumer product solutions as opposed to strictly commercial solar modules. We also remain focused on specialty solar applications which can fully leverage the unique properties of our award winning CIGS technology. These include aerospace, defense, emergency management and consumer/OEM applications.

In February 2017 Ascent announced the discontinuation of our EnerPlex consumer business by disposing of the EnerPlex brand, and related intellectual properties and trademarks, to our battery product supplier, in an effort to better allocate its resources and to continue to focus on its core strength in the high-value specialty PV market. Ascent is no longer producing or selling Enerplex-branded consumer products and is focusing on its photovoltaic business. Ascent will continue to supply solar PV products for the EnerPlex™ products, thereby supporting their continued growth with Ascent's proprietary and award-winning thin-film solar technologies and products.

Ascent's strategic marketing efforts going forward will be focused on commercializing our proprietary solar technology in three highest-value PV verticals:

I. Public Sector: Defense and Emergency Management
II. Aerospace: Space and Fixed Wing UAV
III. Commercial Off-grid and Portable Power

Each of these strategic verticals include customer segments that place a high value on lightweight, high performance and durable portable power solutions. The value proposition of Ascent's proprietary solar technology not only aligns with the needs of customers in these verticals, but also overcomes many of the obstacles other solar technologies face in these unique markets. Ascent has the capability to design and develop finished products for end users in these areas as well as collaborate with strategic partners to design and develop custom integrated solutions for products like fixed-wing UAVs. Ascent sees significant overlap in the needs of end users across some of these verticals and can achieve economies of scale in sourcing, development, and production in commercializing products for these customers.

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The integration of Ascent's solar modules into space, near space, and aeronautic vehicles with ultra-lightweight and flexible solar modules is an important market opportunity for the Company. Customers in this market have historically required a high level of durability, high voltage and conversion efficiency from solar module suppliers, and we believe our products are well suited to compete in this premium market. In May 2014, together with our partners, Silent Falcon UAS Technologies and Bye Aerospace, we announced the successful first flight of a production version of the Silent Falcon™ Unmanned Aircraft Systems, powered by Ascent’s ultra-lightweight, flexible PV modules. In July 2014, our ultra-lightweight, flexible PV modules were selected by Vanguard Space Technologies for their NASA Small Business Innovative Research program. The NASA program is intended to develop an economical, lightweight alternative to existing and emerging high-cost solar arrays for high-power space applications. We expect opportunities in this segment to develop rapidly due to customers' extensive development, testing and evaluation processes.

In March 2016, the Company announced a major breakthrough of our high-voltage superlight modules, achieving a power-to-weight ratio of 1,700 watts per kilogram at AM0 environment. In December 2016, Ascent was selected by the Japan Aerospace Exploration Agency ("JAXA") as part of their next round of evaluations for providing solar technology for an upcoming mission to Jupiter, as well as to address additional missions. This decision followed an earlier round of investigation with promising results, during which the Company's flexible, monolithically integrated CIGS solar module was subjected to environmental extremes, and continued to operate well. During the first phase of JAXA's evaluation, Ascent's PV was successfully tested below -146°C (-231°F) and up to +190°C (+374 °F), and to only 4% of the sunlight generally received in earth's orbit. In addition, JAXA has subjected Ascent's PV to radiation and mechanical testing.

In 2017 we continued to solidify our position in the space and near-space markets; these challenging requirements and environments allow for the full utilization of the unique nature and advantages of our lightweight, flexible monolithically-integrated CIGS PV. Through continued work in the PV-powered drone field, Ascent made significant strides in providing PV power to high-altitude airships and next-generation space applications.

In January 2017, Ascent was awarded a contract to supply high-voltage SuperLight thin-film CIGS PV blankets. These 50W, fully laminated, flexible blankets were manufactured using a new process that was optimized for high performance in near-space conditions at elevated temperatures, and are custom designed for easy modular integration into series and parallel configurations to achieve the desired voltage and current required for such application.

In November 2017, Ascent fulfilled a third order from JAXA for custom PV products designed specifically for their upcoming solar sail deployment demonstration project. This project was comprised of small area test cells and large, 19.5cm x 30cm monolithically-integrated modules, all on a very thin, 25-micron (0.001 inch) plastic substrate which is half the thickness of Ascent’s production substrate for a standard product. In space, near-space, and drone applications, the PV substrate accounts for a significant portion of the product’s overall mass; the PV construction on the new 25-micron substrates represents a major breakthrough for these markets. JAXA placed this order after achieving the desired experimental results from the previous shipments and subsequent electrical, mechanical and environmental testing. The 19.5cm x 30cm module is a custom design to match the anticipated deployment mechanism and PV layout for the final Jovian spacecraft.

Also in 2017, Ascent fulfilled a new order, with another repeat space customer, to manufacture a new micro-module, approximately 12.8mm x 50mm (0.5in x 2.0in) in size that is ideal for both laboratory-scale environmental testing, and for subsequent integration into flight experiments.

In 2015 Ascent Solar won its second R&D 100 Award, the 2015 award was given for the development of the MilPak platform, a military-grade solar power generation and storage unit. The MilPak platform is one of the most rugged, yet lightweight, power generation and storage solutions available, both attributes enabled by the use of Ascent’s CIGS technology.

The military market has a unique set of requirements we believe are well suited to our products. When integrated with fabric to form re-deployable arrays, our highly efficient, rugged, lightweight modules may allow soldiers to minimize battery loads, reduce the use of conventional fuels, and increase safety through the streamlining of fuel transport operations, providing the front-line units with maximum resilience and helping to increase operational efficiency. We are also working to expand our foldable line of outdoor solar chargers, such as the XD-12 and the XD-48, which are well suited for the individual soldier or for the bigger power needs of a platoon with the ability of several chargers to be strung together. Our modules can also provide a reliable source of renewable power in remote areas, regardless of local infrastructure. We will continue to reach the military market through partnerships with top systems providers, by providing Government Service Administration Letters of Supply, and through direct sales and other blanket purchase agreements with the government.

Transportation integrated PV, or integration of our flexible solar modules with vehicles such as commercial trucks, buses, trains and passenger cars, is another market segment that represents a significant opportunity. Due to their flexible form and durable, lightweight properties, our modules can be fitted to the exterior of various vehicles to provide supplemental power without significantly affecting the aerodynamics, weight or aesthetics of the vehicle. We are currently working with multiple integrators and OEMs to develop effective value added solutions for this market.

During the third quarter of 2017, Ascent Solar demonstrated its breadth of capabilities at the US Special Operations Command ("SOCOM") exclusive Technical Experimentation ("TE") 17-3 Event in Washington, DC. SOCOM is tasked, by the Department of Defense ("DoD"), with providing Special Operations Forces ("SOF") with the latest war fighting technology available; in support of this effort, SOCOM sponsors an annual TE event. In July of 2017 SOCOM requested the participation of companies who have proficiency in the areas of Satellite Communication ("SATCOM") and Unattended Ground Sensors ("UGS") for a TE event. Over 30 companies were selected to participate, and Ascent Solar was one of only 2 companies selected to participate who didn't actually make SATCOM or UGS products. Ascent Solar was selected on the basis and recognition that one of the primary issues facing the DoD today is the ability to power all of their war fighting technology. Ascent's diverse line-up of rugged and lightweight portable solar products offers the potential for the DoD to generate unattended ongoing power, which could save lives and increase the efficiency of the war fighting effort. Ascent was honored to be chosen to participate, and the assessed score we received is indicative of a capability that has "high potential for SOF use with few limitations".

During the third quarter of 2018, Ascent Solar was once again selected to demonstrate its breadth of capabilities at the SOCOM exclusive TE 18-3 Event in Washington, DC. In July of 2018, SOCOM requested the participation of companies who have proficiency in the areas of Intelligence, Surveillance and Reconnaissance (ISR), Small Unmanned Aerial Systems (SUAS) and Mobility for the TE event. Over 50 companies were selected to participate, and Ascent Solar was one of only 2 companies selected for a second straight year.

We continue to supply our strategic partners with PV modules to support their development, testing and certification of new integrated PV products, including product testing by several branches of the U.S. military. We believe that our high power density flexible solar modules enable new applications for solar power. By creating mutually beneficial partnerships and strategically penetrating the markets discussed above, we plan to transform the landscape of solar power generation with truly innovative end products.

Competition

We have shifted our strategic focus away from large scale utility projects of the traditional solar markets. We believe our thin film, monolithically integrated CIGS technology enables us to deliver sleek, lightweight, rugged, high performance solutions to serve these markets as competitors from other thin film and c-Si companies emerge. The landscape of thin film manufacturers encompasses a broad mix of technology platforms at various stages of development, and consists of a number of medium and small companies.

The market for traditional, grid connected PV products is dominated by large manufacturers of c-Si technology, although thin film technology on glass has begun to emerge among the major players. We anticipate that while these large manufacturers may continue to dominate the market with their silicon based products, thin film manufacturers will likely capture an increasingly larger share of the market, as is evident from the success of First Solar (CdTe) and Solar Frontier (CIGS), both among the top 20 producers worldwide. In 2016, crystalline silicon PV technology represented over 90% of global market revenue and 93% of global production, with the balance captured by thin film. Approximately half of thin film production is CdTe production, with the other half being split between CIGS and a-Si.

We believe that our modules offer unique advantages. Their flexibility, low areal density (mass per unit area), and high specific power (power per unit mass) enable use on weight-sensitive applications, such as portable power, conformal aircraft surfaces, high altitude long endurance (HALE) fixed wing and lighter than air (LTA) vehicles, and space applications that are unsuitable for glass-based modules. Innovative product design, customer focused development , and our rapid prototyping capability yield modules that could be integrated into virtually any product to create a source of renewable energy. Whether compared to glass based or other flexible modules, our products offer competitive advantages making them unique in comparison to competing products.

We define the consumer and portable power space as comprising solar powered solutions in the sub-single watt range (i.e. solar power for remote sensors) all the way up to the several hundred watts of power range (i.e. outdoor solar chargers for camping, military or outdoor work). Competitors in the consumer products space include companies that design and distribute solar charging solutions but outsource manufacturing. These include Goal Zero, Voltaic, A-Solar, Solio, PowerTraveller, Solar Components, and RDK Products. Mono or polycrystalline silicon solar technologies are common in these products. Other competitors in this segment include thin-film solar manufacturers who provide a complete product under their company name or brand. These companies include P3 solar, PowerFilm, Trony, and more recently Alta Devices. We believe our differentiated technology lends itself to delivering competitive solutions in the emerging market for personal and portable solar and non-solar charging solutions.

Research and Development and Intellectual Property

We intend to continue to invest in research and development in order to provide near term improvements to our manufacturing process and products, as well as to identify next generation technologies relevant to both our existing and potential new markets. During 2018 and 2017 we incurred approximately $2.8 million and $4.8 million, respectively, in research and development costs, which include research and development incurred in relation to our government contracts, as well as manufacturing costs incurred while developing our product lines and manufacturing process.

Our technology was initially developed at ITN beginning in 1994. In early 2006, ITN assigned to us certain CIGS PV-specific technologies, and granted to us a perpetual, exclusive, royalty free, worldwide license to use these technologies in connection with the manufacture, development, marketing and commercialization of CIGS PV to produce solar power. In addition, certain of ITN’s existing and future proprietary process and control technologies, although nonspecific to CIGS PV, were assigned to us. ITN retained the right to conduct research and development activities in connection with PV materials, and we agreed to grant a license back to ITN for improvements to the licensed technologies and intellectual property outside of the CIGS PV field.

We protect our intellectual property through a combination of trade secrets and patent protections. We own the following patents and published patent applications:

Issued Patents and Registrations

1. US Patent No. 7,271,333 entitled “Apparatus and Method of Production of Thin-Film Photovoltaic Modules” (issued September 18, 2007)

2. US Patent No. 7,812,247 entitled “Flexible Photovoltaic Array With Integrated Wiring And Control Circuitry, And Associated Methods” (issued October 12, 2010; (co-owned with PermaCity Corporation)

3. US Patent No. 8,021,905 entitled “Machine and Process for Sequential Multi-Sublayer Deposition of Copper Indium Gallium Diselenide Compound Semiconductors” (issued September 20, 2011)

4. US Patent No. 8,124,870 entitled “Systems and Processes for Bifacial Collection and Tandem Junctions Using a Thin film Photovoltaic Device” (issued February 28, 2012)

5. US Patent No. 8,207,442 entitled “Reinforcing Structures for Thin film Photovoltaic Device Substrates, and Associated Methods” (issued June 26, 2012)

6. US Patent No. 8,426,725 entitled “Apparatus and Method for Hybrid Photovoltaic Device Having Multiple, Stacked, Heterogeneous, Semiconductor Junctions” (issued April 23, 2013)

7. US Patent No. 8,465,589 entitled “Machine and Process for Sequential Multi-Sublayer Deposition of Copper Indium Gallium Diselenide Compound Semiconductors” (issued June 18, 2013)

8. US Patent No. D697,502 entitled "Mobile Electronic Device Case” (issued January 14, 2014)

9. US Patent No. 8,648,253 entitled “Machine and Process for Continuous, Sequential, Deposition of Semiconductor Solar Absorbers Having Variable Semiconductor Composition Deposited in Multiple Sublayers” (issued February 11, 2014)

10. US Patent No. 8,716,591 entitled “Array of Monolithically Integrated Thin Film PhotoVoltaic Cells and Associated Methods” (issued May 6, 2014)
11. ECD No. 001429773-0001 entitled “Mobile Handheld Electronic Device Case” (issued February 6, 2015)
12. ECD No. 001429773-0002 entitled “Mobile Handheld Electronic Device Case” (issued February 6, 2015)
13. ECD No. 001429773-0003 entitled “Mobile Handheld Electronic Device Case” (issued February 6, 2015)
14. ECD No. 001429773-0004 entitled “Mobile Handheld Electronic Device Case” (issued February 6, 2015)
15. ECD No. 001429773-0005 entitled “Mobile Handheld Electronic Device Case” (issued February 6, 2015)
16. ECD No. 001429773-0006 entitled “Mobile Handheld Electronic Device Case” (issued February 6, 2015)
17. ECD No. 001429773-0007 entitled “Mobile Handheld Electronic Device Case” (issued February 6, 2015)

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18. ECD No. 002732123-0001 entitled “Portable Battery Charging Device” (issued July 7, 2015)

19. ECD No. 002732123-0002 entitled “Portable Battery Charging Device” (issued July 7, 2015)

20. ECD No. 002732123-0003 entitled “Portable Battery Charging Device” (issued July 7, 2015)

21. ECD No. 002735159-0001 entitled “Portable Energy Storage And Distribution Device” (issued July 10, 2015)

22. ECD No. 002735159-0002 entitled “Portable Energy Storage And Distribution Device” (issued July 10, 2015)

23. ECD No. 002735159-0003 entitled “Portable Energy Storage And Distribution Device” (issued July 10, 2015)

24. ECD No. 002735159-0004 entitled “Portable Energy Storage And Distribution Device” (issued July 10, 2015)

25. US Patent 9,147,783 entitled “Apparatus and Method for Hybrid Photovoltaic Device Having Multiple, Stacked, Heterogeneous, Semiconductor Junctions” (issued September 29, 2015)

26. KR Patent No. 30. 0860220 entitled “Apparatus and Method for Hybrid Photovoltaic Device Having Multiple, Stacked, Heterogeneous, Semiconductor Junctions” (issued October 13, 2015)

27. KR Patent 10-1561453 entitled “Apparatus and Method for Hybrid Photovoltaic Device Having Multiple, Stacked, Heterogeneous, Semiconductor Junctions” (issued October 13, 2015)

28. US Patent No. 9,209,322 entitled “Multilayer Thin-Film Back Contact System For Flexible Photovoltaic Devices On Polymer Substrates” (issued December 8, 2015)

29. US Patent No. 9,219,179 entitled “Multilayer Thin-Film Back Contact System For Flexible Photovoltaic Devices On Polymer Substrates” (issued December 22, 2015)

30. CN Patent No. ZL 201530237203.8 entitled “Photovoltaic-Based Fully Integrated Portable Power System” (issued February 10, 2016)

31. TW Patent No. I526630 entitled “Subtractive Hinge and Associated Methods” (issued March 21, 2016)

32. US Patent No. 9,349,905 entitled “Hybrid Multi-Junction Photovoltaic Cells And Associated Methods” (issued May 24, 2016)

33. TW Patent No. I536592 entitled “Photovoltaic Assembly and Associated Methods” (issued June 1, 2016)

34. KR Patent No. 30-0860220 entitled “Photovoltaic-Based Fully Integrated Portable Equipment For Control of Electric Power” (issued June 16, 2016)

35. CN Patent No. ZL 201180067131.6 entitled “Apparatus and Method for Hybrid Photovoltaic Device Having Multiple, Stacked, Heterogeneous, Semiconductor Junctions” (issued August 10, 2016)

36. CN Patent No. ZL201380012566.X entitled “Subtractive Hinge And Associated Methods” (issued August 24, 2016)

37. US Patent No. 9538671 entitled System For Housing And Powering A Battery-Operated Device And Associated Methods (issued January 3, 2017)

38. US Patent No. D781,228 entitled Pocket-Sized Photovoltaic-Based Fully Integrated Portable Power System (issued March 14, 2017)

39. US Patent No. 9601650 entitled Machine And Process For Continuous, Sequential, Deposition Of Semiconductor Solar Absorbers Having Variable Semiconductor Composition Deposited In Multiple Sublayers (issued March 21, 2017)

40. US Patent No. 9634175 entitled Systems And Methods For Thermally Managing High-Temperature Processes On Temperature Sensitive Substrates (issued April 25, 2017)

41. US Patent No. 9640706 entitled Hybrid Multi-Junction Photovoltaic Cells And Associated Methods (issued May 2, 2017)

42. US Patent No. 9640692 entitled Flexible Photovoltaic Array with Integrated Wiring and Control Circuitry, and Associated Methods (issued May 2, 2017)

43. US Patent No. 9653635 entitled Flexible High-Voltage Adaptable Current Photovoltaic Modules and Associated Methods (issued May 16, 2017)

44. Taiwan Patent No. I583810 entitled Systems And Methods For Thermally Managing High-Temperature Processes On Temperature Sensitive Substrates (issued May 21, 2017)

45. Switzerland Patent No. 2742535 entitled Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates (issued July 26, 2017)

46. EPC Patent No. 2742535 entitled Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates (issued July 26, 2017)

47. France Patent No. 2742535 entitled Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates (issued July 26, 2017)

48. Great Britain Patent No. 2742535 entitled Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates (issued July 26, 2017)

49. Germany Patent No. 602012035034.2 entitled Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates (issued July 26, 2017)

50. Taiwan Patent No. I595674 entitled Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates (issued August 11, 2017)

51. US Patent No. 9780242 entitled “Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates” (issued October 3, 2017)

Published Patent Applications

1. "Flexible Photovoltaic Array with Integrated Wiring and Control Circuitry, and Associated Methods" (US 12/901,963) (filed October 11, 2010) (co-owned with PermaCity Corporation)

2. “Cd-Free, Oxide Buffer Layers for Thin Film CIGS Solar Cells By Chemical Solution Deposition Methods” (US 13/227,935) (filed September 8, 2011)

3. “Systems and Processes for Bifacial Collection and Tandem Junctions Using a Thin film Photovoltaic Device” (US 13/406,376) (filed February 27, 2012)

4. “Multilayer Thin Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates” (US 13/572,387) (filed August 10, 2012)

5. “Multilayer Thin Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates” (PCT/US2012/050398) (filed August 10, 2012)

6. “Multilayer Thin Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates” (CN 201280047345.1) (filed August 10, 2012)

7. “Apparatus and Method for Hybrid Photovoltaic Device Having Multiple, Stacked, Heterogeneous, Semiconductor Junctions” (EP 11804861.0) (filed December 13, 2011)

8. “Apparatus and Method for Hybrid Photovoltaic Device Having Multiple, Stacked, Heterogeneous, Semiconductor Junctions” (CN 201180067131.6) (filed December 13, 2011)

9. “Subtractive Hinge and Associated Methods (US 13/783,336) (filed March 3, 2013)

10. “Subtractive Hinge and Associated Methods (PCT/US 2013/28,929) (filed March 4, 2013)

11. “Subtractive Hinge and Associated Methods (CN 201380012566.X) (filed March 4, 2013)

12. “Subtractive Hinge and Associated Methods (EP 13758462.9) (filed March 4, 2013)

13. “System For Housing And Powering A Battery-Operated Device And Associated Methods” (US 13/802,713) (filed March 14, 2013)

14. “System For Housing And Powering A Battery-Operated Device And Associated Methods” (US 13/802,719) (filed March 14, 2013)

15. “System For Housing And Powering A Battery-Operated Device And Associated Methods” (PCT/US2013/34988) (filed April 2, 2013)

16. “Photovoltaic Assembly and Associated Methods” (US 14/038096) (filed September 26, 2013)

17. “Photovoltaic Assembly and Associated Methods” (PCT/US2013/62355) (filed September 27, 2013)

18. “Photovoltaic Assembly and Associated Methods” (CN 201380060351.5) (filed September 27, 2013)

19. “Photovoltaic Assembly and Associated Methods” (EP 13840976.8) (filed September 27, 2013)

20. “Flexible High-Voltage Adaptable Current Photovoltaic Modules and Associated Methods” (US 14/041,886) (filed September 30, 2013)

21. “Hybrid Multi-Junction Photovoltaic Cells And Associated Methods” (US 14/100,960) (filed December 9, 2013)

22. “System For Housing And Powering A Battery-Operated Device And Associated Methods” (PCT/US2013/74936) (filed December 13, 2013)

23. “Systems And Methods For Thermally Managing High-Temperature Processes On Temperature Sensitive Substrates” (US 14/150,376) (filed January 8, 2014)

24. “Systems And Methods For Thermally Managing High-Temperature Processes On Temperature Sensitive Substrates” (PCT/US2014/10867) (filed January 8, 2014)

25. “Systems And Methods For Thermally Managing High-Temperature Processes On Temperature Sensitive Substrates” (CN 201480004408.4) (filed January 8, 2014)

26. “Systems And Methods For Thermally Managing High-Temperature Processes On Temperature Sensitive Substrates” (EP 14738271.7) (filed January 8, 2014)

27. “Multilayer Thin-Film Back Contact System For Flexible Photovoltaic Devices On Polymer Substrates” (PCT/US15/20184) (filed March 12, 2015)

28. “Array Of Monolithically Integrated Thin Film Photovoltaic Cells And Associated Methods” (14/252,485) (filed April 14, 2014)

29. “Subtractive Hinge And Associated Methods” (EP 13758462.9) (filed March 4, 2013)

30. “Photovoltaic Assembly and Associated Methods” (EP 13840976.8) (filed September 27, 2013)

31. “Systems And Methods For Thermally Managing High-Temperature Processes On Temperature Sensitive Substrates” (CN 201480004408.4) (filed January 9, 2014)

32. “Systems And Methods For Thermally Managing High-Temperature Processes On Temperature Sensitive Substrates” (EP 14738271.7) (filed January 9, 2014)

33. “Multilayer Thin-Film Back Contact System For Flexible Photovoltaic Devices On Polymer Substrates” (US 14/932,933) (filed November 4, 2015)

34. “Photovoltaic-Based Fully Integrated Portable Power Systems” (PCT/US16/12047) (filed January 4, 2016)

35. “Photovoltaic-Based Fully Integrated Portable Power System” (US 14/987,214) (filed January 4, 2016)

36. “Systems and Processes for Bifacial Collection and Tandem Junctions Using a Thin-Film Photovoltaic Device” (US 15/099,835) (filed April 15, 2016)

37. “Photovoltaic-Based Fully Integrated Portable Power Management And Networking System” (PCT/US16/25647) (filed April 1, 2016)

38. “Photovoltaic-Based Fully Integrated Portable Power Management And Networking System” (US 15/089,028) (filed April 1, 2016)

39. “Photovoltaic Device and Method of Manufacturing Same” (CN 201610416638.2) (filed December 13, 2011)

40. “Multilayer Thin-Film Back Contact System For Flexible Photovoltaic Devices On Polymer Substrates” (US 15/258,169) (filed September 7, 2016)

41. “Hybrid Multi-Junction Photovoltaic Cells And Associated Methods” (US 15/137,696) (filed April 25, 2016)

42. “Machine And Process For Continuous, Sequential, Deposition Of Semiconductor Solar Absorbers Having Variable Semiconductor Composition Deposited In Multiple Sublayers” (US 15/584,241) (filed May 2, 2017)

43. “Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates” (GB 12759843.1) (Filed August 10, 2012)

44. “Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates” (WO PCT/US16/58933) (Filed October 26, 2016)

45. “Subtractive Hinge and Associated Methods” (US 15/673,283) (Filed August 9, 2017)

Ascent Solar has trademark applications and registrations in the United States and worldwide for slogans and product family names such as WaveSol, MilPak, and Transforming Everyday Life.

Depending on country laws, the marks listed above may include the ™ or ® symbols.

Suppliers

We rely on several unaffiliated companies to supply certain raw materials used during the fabrication of our PV modules and PV integrated electronics. We acquire these materials on a purchase order basis and do not have long term purchase quantity commitments with the suppliers, although we may enter into such contracts in the future. We currently acquire all of our high temperature plastic from one supplier, although alternative suppliers of similar materials exist. We purchase component molybdenum, copper, indium, gallium, selenium and indium tin oxides from a variety of suppliers. We also currently are in the process of identifying and negotiating arrangements with alternative suppliers of materials in the United States and Asia.

The manufacturing equipment and tools used in our production process have been purchased from various suppliers in Europe, the United States and Asia. Although we have had good relations with our existing equipment and tools suppliers, we monitor and explore opportunities for developing alternative sources to drive our manufacturing costs down.

Employees

As of December 31, 2018, we had 22 full time employees.

Company History

We were formed in October 2005 from the separation by ITN of its Advanced Photovoltaic Division and all of that division's key personnel and core technologies. ITN, a private company incorporated in 1994, is an incubator dedicated to the development of thin film, PV, battery, fuel cell and nanotechnologies. Through its work on research and development contracts for private and government entities, ITN developed proprietary processing and manufacturing know-how applicable to PV products generally, and to CIGS PV products in particular. Our company was established by ITN to commercialize its investment in CIGS PV technologies. In January 2006, ITN assigned to us all its CIGS PV technologies and trade secrets and granted to us a perpetual, exclusive, royalty free worldwide license to use certain of ITN's proprietary process, control and design technologies in the production of CIGS PV modules. Upon receipt of the necessary government approvals in January 2007, ITN assigned government funded research and development contracts to us and also transferred the key personnel working on the contracts to us.

Corporate Information

We were incorporated under the laws of Delaware in October 2005. Our principal business office is located at 12300 Grant Street, Thornton, Colorado 80241, and our telephone number is (720) 872-5000. Our website address is *www.ascentsolar.com*. Information contained on our website or any other website does not constitute, and should not be considered, part of this Annual Report.

Available Information

We file with the Securities and Exchange Commission ("SEC") our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and all amendments to those reports, proxy statements and registration statements. You may read and copy any material we file with the SEC at the SEC's Public Reference Room at 100 F Street, NE, Washington, D.C. 20549. You may also obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. In addition, the SEC maintains an internet site at http://www.sec.gov that contains reports, proxy and information statements, and other information regarding issuers, including us, that file electronically. We make available free of charge on, or through, our website at *www.ascentsolar.com* our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to these reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended ("Exchange Act") as soon as reasonably practicable after we file these materials with the SEC.

Item 1A. Risk Factors

The risks included here are not exhaustive or exclusive. Other sections of this Annual Report may include additional factors which could adversely affect our business, results of operations and financial performance. We operate in a very competitive and rapidly changing environment. New risk factors emerge from time to time, and it is not possible for management to predict all such risk factors, nor can it assess the impact of all such risk factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements. Given these risks and uncertainties, investors should not place undue reliance on forward-looking statements as a prediction of actual results.

Risks Relating to Our Business

We have a limited history of operations, have not generated significant revenue from operations and have had limited production of our products. We have a limited operating history and have generated limited revenue from operations. Currently we are producing products in quantities necessary to meet current demand. Under our current business plan, we expect losses to continue until annual revenues and gross margins reach a high enough level to cover operating expenses. We are utilizing contract manufacturers in Asia for components and for final assembly of finished goods. Our ability to achieve our business, commercialization and expansion objectives will depend on a number of factors, including whether:

- We can generate customer acceptance of and demand for our products;
- We successfully ramp up commercial production on the equipment installed;
- Our products are successfully and timely certified for use in our target markets;
- We successfully operate production tools to achieve the efficiencies, throughput and yield necessary to reach our cost targets;

- The products we design are saleable at a price sufficient to generate profits;
- We raise sufficient capital to enable us to reach a level of sales sufficient to achieve profitability on terms favorable to us;
- We are able to successfully design, manufacture, market, distribute and sell our products;
- We effectively manage the planned ramp up of our operations;
- We successfully develop and maintain strategic relationships with key partners, including OEMs, system integrators and distributors, retailers and e-commerce companies, who deal directly with end users in our target markets;
- Our ability to maintain the listing of our common stock on the OTCBB Market;
- Our ability to achieve projected operational performance and cost metrics;
- Our ability to enter into commercially viable licensing, joint venture, or other commercial arrangements; and
- The availability of raw materials.

Each of these factors is critical to our success, and accomplishing each of these tasks may take longer or cost more than expected, or may never be accomplished. It also is likely that problems we cannot now anticipate will arise. If we cannot overcome these problems, our business, results of operations and financial condition could be materially and adversely affected.

We have to date incurred net losses and may be unable to generate sufficient sales in the future to become profitable. We incurred a net loss of $16 million for the year ended December 31, 2018 and reported an accumulated deficit of $419 million as of December 31, 2018. We expect to incur net losses in the near term. Our ability to achieve profitability depends on a number of factors, including market acceptance of our specialty PV products at competitive prices. If we are unable to raise additional capital and generate sufficient revenue to achieve profitability and positive cash flows, we may be unable to satisfy our commitments and may have to discontinue operations.

Our business is based on a new technology, and if our PV modules or processes fail to achieve the performance and cost metrics that we expect, then we may be unable to develop demand for our PV modules and generate sufficient revenue to support our operations. Our CIGS on flexible plastic substrate technology is a relatively new technology. Our business plan and strategies assume that we will be able to achieve certain milestones and metrics in terms of throughput, uniformity of cell efficiencies, yield, encapsulation, packaging, cost and other production parameters. We cannot assure you that our technology will prove to be commercially viable in accordance with our plan and strategies. Further, we or our strategic partners and licensees may experience operational problems with such technology after its commercial introduction that could delay or defeat the ability of such technology to generate revenue or operating profits. If we are unable to achieve our targets on time and within our planned budget, then we may not be able to develop adequate demand for our PV modules, and our business, results of operations and financial condition could be materially and adversely affected.

Our failure to further refine our technology and develop and introduce improved PV products could render our PV modules uncompetitive or obsolete and reduce our net sales and market share. Our success requires us to invest significant financial resources in research and development to keep pace with technological advances in the solar energy industry. However, research and development activities are inherently uncertain, and we could encounter practical difficulties in commercializing our research results. Our expenditures on research and development may not be sufficient to produce the desired technological advances, or they may not produce corresponding benefits. Our PV modules may be rendered obsolete by the technological advances of our competitors, which could harm our results of operations and adversely impact our net sales and market share.

Failure to expand our manufacturing capability successfully at our facilities would adversely impact our ability to sell our products into our target markets and would materially and adversely affect our business, results of operations and financial condition. Our growth plan calls for production and operation at our facility. Successful operations will require substantial engineering and manufacturing resources and are subject to significant risks, including risks of cost overruns, delays and other risks, such as geopolitical unrest that may cause us not to be able to successfully operate in other countries. Furthermore, we may never be able to operate our production processes in high volume or at the volumes projected, make planned process and equipment improvements, attain projected manufacturing yields or desired annual capacity, obtain timely delivery of components, or hire and train the additional employees and management needed to scale our operations. Failure to meet these objectives on time and within our planned budget could materially and adversely affect our business, results of operations and financial condition.

We may be unable to manage the expansion of our operations and strategic alliances effectively. We will need to significantly expand our operations and form beneficial strategic alliances in order to reduce manufacturing costs through economies of scale and partnerships, secure contracts of commercially material amounts with reputable customers and capture a meaningful share of our target markets. To manage the expansion of our operations and alliances, we will be required to improve our operational and financial systems, oversight, procedures and controls and expand, train and manage our growing employee base. Our management team will also be required to maintain and cultivate our relationships with partners, customers, suppliers and other third parties and attract new partners, customers and suppliers. In addition, our current and planned operations, personnel, facility size and configuration, systems and internal procedures and controls, even when augmented through strategic alliances, might be inadequate or insufficient to support our future growth. If we cannot manage our growth effectively, we may be unable to take advantage of market opportunities, execute our business strategies or respond to competitive pressures, resulting in a material and adverse effect to our business, results of operations and financial condition.

We depend on a limited number of third party suppliers for key raw materials, and their failure to perform could cause manufacturing delays and impair our ability to deliver PV modules to customers in the required quality and quantity and at a price that is profitable to us. Our failure to obtain raw materials and components that meet our quality, quantity and cost requirements in a timely manner could interrupt or impair our ability to manufacture our products or increase our manufacturing cost. Most of our key raw materials are either sole sourced or sourced by a limited number of third party suppliers. As a result, the failure of any of our suppliers to perform could disrupt our supply chain and impair our operations. Many of our suppliers are small companies that may be unable to supply our increasing demand for raw materials as we implement our planned expansion. We may be unable to identify new suppliers in a timely manner or on commercially reasonable terms. Raw materials from new suppliers may also be less suited for our technology and yield PV modules with lower conversion efficiencies, higher failure rates and higher rates of degradation than PV modules manufactured with the raw materials from our current suppliers.

Our continuing operations will require additional capital which we may not be able to obtain on favorable terms, if at all or without dilution to our stockholders. Since inception, we have incurred significant losses. We expect to continue to incur net losses in the near term. For the year ended December 31, 2018, our cash used in operations was $4.0 million. At December 31, 2018, we had cash and equivalents of approximately $18,000.

Although we have commenced production at our manufacturing facility, we do not expect that sales revenue and cash flows will be sufficient to support operations and cash requirements until we have fully implemented our new strategy of focusing on high value PV products. Additional projected product revenues are not anticipated to result in a positive cash flow position for the year 2019 overall. The Company will need to raise additional capital in order to continue our current level of operations throughout 2019.

To the extent that we may need to raise additional capital in the future there is no assurance that we will be able to raise additional capital on acceptable terms or at all. If we raise additional funds through the issuance of equity or convertible debt securities, the percentage ownership of our existing stockholders could be significantly diluted, and these newly issued securities may have rights, preferences or privileges senior to those of existing stockholders. If we raise additional funds through debt financing, which may involve restrictive covenants, our ability to operate our business may be restricted. If adequate funds are not available or are not available on acceptable terms, if and when needed, our ability to fund our operations, take advantage of unanticipated opportunities, develop or enhance our products, expand capacity or otherwise respond to competitive pressures could be significantly limited, and our business, results of operations and financial condition could be materially and adversely affected.

In addition, the terms of a loan we obtained from the Colorado Housing and Finance Authority ("CHFA") in connection with our purchase and improvement of our Thornton, Colorado facility contain covenants that limit our ability, without the consent of CHFA, to create or incur additional indebtedness (other than obligations created or incurred in the ordinary course of business such as working capital financing); merge or consolidate with any other entity; or make loans or advances to our officers, shareholders, directors or employees. The presence of these covenants gives CHFA the ability to bar us from engaging in certain transactions in the future that we may determine are necessary or advisable to meet our business objectives, including debt offerings and acquisitions of or by other companies. If CHFA were to withhold its written consent under these or other circumstances, we could be forced to prepay such loans at a premium, which could adversely affect our business, results of operations and financial condition.

Our products may never gain sufficient market acceptance, in which case we would be unable to sell our products or achieve profitability. Demand for our products may never develop sufficiently, and our products may never gain market acceptance, if we fail to produce products that compare favorably against competing products on the basis of cost, quality, weight, efficiency and performance. Demand for our products also will depend on our ability to develop and maintain successful relationships with key partners, including distributors, retailers, OEMs, system integrators and value added resellers. If our products fail to gain market acceptance as quickly as we envision or at all, our business, results of operations and financial condition could be materially and adversely affected.

We are targeting emerging markets for a significant portion of our planned product sales. These markets are new and may not develop as rapidly as we expect, or may not develop at all. Our target markets include portable power, defense, transportation, space and near space markets. Although certain areas of these markets have started to develop, some of them are in their infancy. We believe these markets have significant long term potential; however, some or all of these markets may not develop and emerge as we expect. If the markets do develop as expected, there may be other products that could provide a superior product or a comparable product at lower prices than our products. If these markets do not develop as we expect, or if competitors are better able to capitalize on these markets our revenues and product margins may be negatively affected.

Failure to consummate strategic relationships with key partners in our various target market segments, such as defense and portable power, transportation, space and near space, and the respective implementations of the right strategic partnerships to enter these various specified markets, could adversely affect our projected sales, growth and revenues. We intend to sell thin-film PV modules for use in portable power systems, defense and portable power systems, transportation, space and near space solar panel applications. Our marketing and distribution strategy is to form strategic relationships with distributors, value added resellers and e-commerce to provide a foothold in these target markets. If we are unable to successfully establish working relationships with such market participants or if, due to cost, technical or other factors, our products prove unsuitable for use in such applications; our projected revenues and operating results could be adversely affected.

If sufficient demand for our products does not develop or takes longer to develop than we anticipate, we may be unable to grow our business, generate sufficient revenue to attain profitability or continue operations. The solar energy industry is at a relatively early stage of development, and the extent to which PV modules, including our own, will be widely adopted is uncertain. While pure PV solutions is not our short term primary market, if PV technology proves unsuitable for widespread adoption or if demand for PV modules fails to develop sufficiently, long term we may be unable to grow our business, generate sufficient sales to attain profitability or continue operations. Many factors, of which several are outside of our control, may affect the viability of widespread adoption of PV technology and demand for PV modules.

We face intense competition from other manufacturers of thin-film PV modules and other companies in the solar energy industry. The solar energy and renewable energy industries are both highly competitive and continually evolving as participants strive to distinguish themselves within their markets and compete with the larger electric power industry. We believe our main sources of competition are other thin film PV manufacturers and companies developing other solar solutions, such as solar thermal and concentrated PV technologies.

Many of our existing and potential competitors have substantially greater financial, technical, manufacturing and other resources than we do. A competitor's greater size provides them with a competitive advantage because they often can realize economies of scale and purchase certain raw materials at lower prices. Many of our competitors also have greater brand name recognition, established distribution networks and large customer bases. In addition, many of our competitors have well-established relationships with our current and potential partners and distributors and have extensive knowledge of our target markets. As a result of their greater size, these competitors may be able to devote more resources to the research, development, promotion and sale of their products or respond more quickly to evolving industry standards and changes in market conditions than we can. Our failure to adapt to changing market conditions and to compete successfully with existing or future competitors could materially and adversely affect our business, results of operations and financial condition.

Problems with product quality or performance may cause us to incur warranty expenses, damage our market reputation and prevent us from maintaining or increasing our market share. If our products fail to perform as expected while under warranty, or if we are unable to support the warranties, sales of our products may be adversely affected or our costs may increase, and our business, results of operations and financial condition could be materially and adversely affected.

We may also be subject to warranty or product liability claims against us that are not covered by insurance or are in excess of our available insurance limits. In addition, quality issues can have various other ramifications, including delays in the recognition of revenue, loss of revenue, loss of future sales opportunities, increased costs associated with repairing or replacing products, and a negative impact on our goodwill and reputation. The possibility of future product failures could cause us to incur substantial expenses to repair or replace defective products. Furthermore, widespread product failures may damage our market reputation and reduce our market share causing sales to decline.

Currency translation risk may negatively affect our net sales, cost of equipment, cost of sales, gross margin or profitability and could result in exchange losses. Although our reporting currency is the U.S. dollar, we may conduct business and incur costs in the local currencies of other countries in which we operate, make sales or buy equipment or materials. As a result, we are subject to currency translation risk. Our future contracts and obligations may be exposed to fluctuations in currency exchange rates, and, as a result, our capital expenditures or other costs may exceed what we have budgeted. Further, changes in exchange rates between foreign currencies and the U.S. dollar could affect our net sales and cost of sales and could result in exchange losses. We cannot accurately predict future exchange rates or the overall impact of future exchange rate fluctuations on our business, results of operations and financial condition.

A significant increase in the price of our raw materials could lead to higher overall costs of production, which would negatively affect our planned product margins, or make our products uncompetitive in the PV market. Our raw materials include high temperature plastics and various metals. Significant increases in the costs of these raw materials may impact our ability to compete in our target markets at a price sufficient to produce a profit.

Our intellectual property rights or our means of enforcing those rights may be inadequate to protect our business, which may result in the unauthorized use of our products or reduced sales or otherwise reduce our ability to compete. Our business and competitive position depends upon our ability to protect our intellectual property rights and proprietary technology, including any PV modules that we develop. We attempt to protect our intellectual property rights, primarily in the United States, through a combination of patent, trade secret and other intellectual property laws, as well as licensing agreements and third party nondisclosure and assignment agreements. Because of the differences in foreign patent and other laws concerning intellectual property rights, our intellectual property rights may not receive the same degree of protection in foreign countries as they would in the United States. Our failure to obtain or maintain adequate protection of our intellectual property rights, for any reason, could have a materially adverse effect on our business, results of operations and financial condition. Further, any patents issued in connection with our efforts to develop new technology for PV modules may not be broad enough to protect all of the potential uses of our technology.

We also rely on unpatented proprietary technology. It is possible others will independently develop the same or similar technology or otherwise obtain access to our unpatented technology. To protect our trade secrets and other proprietary information, we require our employees, consultants and advisors to execute proprietary information and invention assignment agreements when they begin working for us. We cannot assure these agreements will provide meaningful protection of our trade secrets, unauthorized use, misappropriation or disclosure of trade secrets, know how or other proprietary information. Despite our efforts to protect this information, unauthorized parties may attempt to obtain and use information that we regard as proprietary. If we are unable to maintain the proprietary nature of our technologies, we could be materially adversely affected.

In addition, when others control the prosecution, maintenance and enforcement of certain important intellectual property, such as technology licensed to us, the protection and enforcement of the intellectual property rights may be outside of our control. If the entity that controls intellectual property rights that are licensed to us does not adequately protect those rights, our rights may be impaired, which may impact our ability to develop, market and commercialize our products. Further, if we breach the terms of any license agreement pursuant to which a third party licenses us intellectual property rights, our rights under that license may be affected and we may not be able to continue to use the licensed intellectual property rights, which could adversely affect our ability to develop, market and commercialize our products.

If third parties claim we are infringing or misappropriating their intellectual property rights, we could be prohibited from selling our PV products, be required to obtain licenses from third parties or be forced to develop non-infringing alternatives, and we could be subject to substantial monetary damages and injunctive relief. The PV industry is characterized by the existence of a large number of patents and frequent litigation based on allegations of patent infringement. We are aware of numerous issued patents and pending patent applications owned by third parties that may relate to current and future generations of solar energy. The owners of these patents may assert the manufacture, use or sale of any of our products infringes one or more claims of their patents. Moreover, because patent applications can take many years to issue, there may be currently pending applications, unknown to us, which may later result in issued patents that materially and adversely affect our business. Third parties could also assert claims against us that we have infringed or misappropriated their intellectual property rights. Whether or not such claims are valid, we cannot be certain we have not infringed the intellectual property rights of such third parties. Any infringement or misappropriation claim could result in significant costs or substantial damages to our business or an inability to manufacture, market or sell any of our PV modules found to infringe or misappropriate. Even if we were to prevail in any such action, the litigation could result in substantial cost and diversion of resources that could materially and adversely affect our business. The large number of patents, the rapid rate of new patent issuances, the complexities of the technology involved and uncertainty of litigation increase the risk of business assets and management's attention being diverted to patent litigation. Even if obtaining a license were feasible, it could be costly and time consuming. We might be forced to obtain additional licenses from our existing licensors in the event the scope of the intellectual property we have licensed is too narrow to cover our activities, or in the event the licensor did not have sufficient rights to grant us the license(s) purportedly granted. Also, some of our licenses may restrict or limit our ability to grant sub-licenses and/or assign rights under the licenses to third parties, which may limit our ability to pursue business opportunities.

Our future success depends on retaining our Chief Executive Officer and existing management team and hiring and assimilating new key employees and our inability to attract or retain key personnel would materially harm our business and results of operations. Our success depends on the continuing efforts and abilities of our executive officers, including Mr. Victor Lee, our President and Chief Executive Officer, our other executive officers, and key technical personnel. Our future success also will depend on our ability to attract and retain highly skilled employees, including management, technical and sales personnel. The loss of any of our key personnel, the inability to attract, retain or assimilate key personnel in the future, or delays in hiring required personnel could materially harm our business, results of operations and financial condition.

Our PV modules contain limited amounts of cadmium sulfide, and claims of human exposure or future regulations could have a material adverse effect on our business, results of operations and financial condition. Our PV modules contain limited amounts of cadmium sulfide, which is regulated as a hazardous material due to the adverse health effects that may arise from human exposure, and is banned in certain countries. We cannot assure you that human or environmental exposure to cadmium sulfide used in our PV modules will not occur. Any such exposure could result in third party claims against us, damage to our reputation and heightened regulatory scrutiny of our PV modules. Future regulation relating to the use of cadmium in various products could force us to seek regulatory exemptions or impact the manufacture and sale of our PV modules and could require us to incur unforeseen environmental related costs. The occurrence of future events such as these could limit our ability to sell and distribute our PV modules, and could have a material adverse effect on our business, results of operations and financial condition.

Environmental obligations and liabilities could have a substantial negative impact on our financial condition, cash flows and profitability. We are subject to a variety of federal, state, local and foreign laws and regulations relating to the protection of the environment, including those governing the use, handling, generation, processing, storage, transportation and disposal of, or human exposure to, hazardous and toxic materials (such as the cadmium used in our products), the discharge of pollutants into the air and water, and occupational health and safety. We are also subject to environmental laws which allow regulatory authorities to compel, or seek reimbursement for, cleanup of environmental contamination at sites now or formerly owned or operated by us and at facilities where our waste is or has been disposed. We may incur significant costs and capital expenditures in complying with these laws and regulations. In addition, violations of, or liabilities under, environmental laws or permits may result in restrictions being imposed on our operating activities or in our being subjected to substantial fines, penalties, criminal proceedings, third party property damage or personal injury claims, cleanup costs or other costs. Also, future developments such as more aggressive enforcement policies, the implementation of new, more stringent laws and regulations, or the discovery of presently unknown environmental conditions or noncompliance may require expenditures that could have a material adverse effect on our business, results of operations and financial condition.

Further, greenhouse gas emissions have increasingly become the subject of international, national, state and local attention. Although future regulations could potentially lead to an increased use of alternative energy, there can be no guarantee that such future regulations will encourage solar technology. Given our limited history of operations, it is difficult to predict future environmental expenses.

We currently anticipate having substantial international operations that will subject us to a number of risks, including potential unfavorable political, regulatory, labor and tax conditions in foreign countries. We expect to expand our operations abroad in the future and, as a result, we may be subject to the legal, political, social and regulatory requirements and economic conditions of foreign jurisdictions. Risks inherent to international operations, include, but are not limited to, the following:

- Difficulty in procuring supplies and supply contracts abroad;
- Difficulty in enforcing agreements in foreign legal systems;
- Foreign countries imposing additional withholding taxes or otherwise taxing our foreign income, imposing tariffs or adopting other restrictions on foreign trade and investment, including currency exchange controls;
- Inability to obtain, maintain or enforce intellectual property rights;
- Risk of nationalization;
- Changes in general economic and political conditions in the countries in which we may operate, including changes in the government incentives we might rely on;
- Unexpected adverse changes in foreign laws or regulatory requirements, including those with respect to environmental protection, export duties and quotas;
- Difficulty with staffing and managing widespread operations;
- Trade barriers such as export requirements, tariffs, taxes and other restrictions and expenses, which could increase the prices of our products and make us less competitive in some countries; and
- Difficulty of, and costs relating to, compliance with the different commercial and legal requirements of the international markets in which we plan to offer and sell our PV products.

Our business in foreign markets will require us to respond to rapid changes in market conditions in these countries. Our overall success as an international business depends, in part, on our ability to succeed in differing legal, regulatory, economic, social and political conditions. If we are not able to develop and implement policies and strategies that are effective in each location where we will do business, then our business, results of operations and financial condition could be materially and adversely affected.

Existing regulations and policies and changes to these regulations and policies may present technical, regulatory and economic barriers to the purchase and use of PV products, which may significantly reduce demand for our PV products. The market for electricity generation products is heavily influenced by foreign, U.S., state and local government regulations and policies concerning the electric utility industry, as well as policies promulgated by electric utilities. These regulations and policies often relate to electricity pricing and technical interconnection of customer owned electricity generation. In the United States and in a number of other countries, these regulations and policies have been modified in the past and may be modified again in the future. These regulations and policies could deter end user purchases of PV products and investment in the research and development of PV technology. For example, without a mandated regulatory exception for PV systems, utility customers are often charged interconnection or standby fees for putting distributed power generation on the electric utility grid. These fees could increase the cost to our end users of using PV systems and make them less desirable, thereby harming our business, prospects, results of operations and financial condition. In addition, electricity generated by PV systems mostly competes with expensive peak hour electricity, rather than the less expensive average price of electricity. Modifications to the peak hour pricing policies of utilities, such as to a flat rate, would require PV systems to achieve lower prices in order to compete with the price of electricity from other sources.

We anticipate that our PV modules and their use in installations will be subject to oversight and regulation in accordance with national and local ordinances relating to building codes, safety, environmental protection, utility interconnection and metering and related matters. It is difficult to track the requirements of individual states and design equipment to comply with the varying standards. Any new government regulations or utility policies pertaining to PV modules may result in significant additional expenses to us, our business partners and their customers and, as a result, could cause a significant reduction in demand for our PV modules.

We have identified material weaknesses in our internal control over financial reporting. If our remedial measures are insufficient to address the material weaknesses, or if additional material weaknesses or significant deficiencies in our internal control over financial reporting are discovered or occur in the future, our consolidated financial statements may contain material misstatements, which could adversely affect our stock price and could negatively impact our results of operations. At December 31, 2018, we concluded that there were material weaknesses in our internal control over financial reporting. A material weakness is a deficiency, or combination of deficiencies, in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of our annual or interim financial statements will not be prevented or detected on a timely basis. See Item 9A in Part II of this Annual Report on Form 10-K for details.

Risks Relating to our Securities and an Investment in our Common Stock

As a public company we are subject to complex legal and accounting requirements that require us to incur substantial expenses, and our financial controls and procedures may not be sufficient to ensure timely and reliable reporting of financial information, which, as a public company, could materially harm our stock price and listing on the OTCBB. As a public company, we are subject to numerous legal and accounting requirements that do not apply to private companies. The cost of compliance with many of these requirements is substantial, not only in absolute terms but, more importantly, in relation to the overall scope of the operations of a small company. Failure to comply with these requirements can have numerous adverse consequences including, but not limited to, our inability to file required periodic reports on a timely basis, loss of market confidence, delisting of our securities and/or governmental or private actions against us. We cannot assure you we will be able to comply with all of these requirements or the cost of such compliance will not prove to be a substantial competitive disadvantage vis-à-vis our privately held and larger public competitors.

The Sarbanes-Oxley Act of 2002 (“Sarbanes-Oxley”) requires, among other things, that we maintain effective internal control over financial reporting and disclosure controls and procedures. In particular, we must perform system and process evaluation and testing of our internal control over financial reporting to allow management to report on the effectiveness of our internal control over financial reporting, as required by Section 404 of Sarbanes-Oxley. Our compliance with Section 404 of Sarbanes-Oxley will require we incur substantial accounting expense and expend significant management efforts. The effectiveness of our controls and procedures may, in the future, be limited by a variety of factors, including:

- Faulty human judgment and simple errors, omissions or mistakes;
- Fraudulent action of an individual or collusion of two or more people;
- Inappropriate management override of procedures; and
- The possibility that any enhancements to controls and procedures may still not be adequate to assure timely and accurate financial information.

If we are not able to comply with the requirements of Section 404 in a timely manner, or if we or our independent registered public accounting firm, identifies deficiencies in our internal control over financial reporting that are deemed to be material weaknesses, we may be subject to OTCBB delisting, investigations by the SEC and civil or criminal sanctions.

Our ability to successfully implement our business plan and comply with Section 404 requires us to be able to prepare timely and accurate financial statements. We expect we will need to continue to improve existing, and implement new operational, financial and accounting systems, procedures and controls to manage our business effectively.

Any delay in the implementation of, or disruption in the transition to, new or enhanced systems, procedures or controls may cause our operations to suffer, and we may be unable to conclude that our internal control over financial reporting is effective as required under Section 404 of Sarbanes-Oxley. If we are unable to complete the required Section 404 assessment as to the adequacy of our internal control over financial reporting, if we fail to maintain or implement adequate controls, our ability to obtain additional financing could be impaired. In addition, investors could lose confidence in the reliability of our internal control over financial reporting and in the accuracy of our periodic reports filed under the Exchange Act. A lack of investor confidence in the reliability and accuracy of our public reporting could cause our stock price to decline.

The price of our common stock may continue to be volatile. Our common stock is currently traded on the OTCBB Market. The trading price of our common stock from time to time has fluctuated widely and may be subject to similar volatility in the future. For example, during the calendar year ended December 31, 2018, our common stock traded below $0.01. The trading price of our common stock in the future may be affected by a number of factors, including events described in these "Risk Factors." In recent years, broad stock market indices, in general, and smaller capitalization and PV companies, in particular, have experienced substantial price fluctuations. In a volatile market, we may experience wide fluctuations in the market price of our common stock. These fluctuations may have a negative effect on the market price of our common stock regardless of our operating performance. In the past, following periods of volatility in the market price of a company's securities, securities class action litigation has often been instituted. A securities class action suit against us could result in substantial costs, potential liabilities and the diversion of management's attention and resources, and could have a material adverse effect on our financial condition.

Our stockholders may experience significant dilution as a result of shares of our common stock issued pursuant to our currently outstanding securities and existing agreements, and pursuant to new securities that we may issue in the future. We are likely to issue substantial amounts of additional common stock in connection with most of our outstanding convertible preferred stock and convertible notes. We may also issue additional common stock or securities convertible into or exchangeable or exercisable for common stock, in connection with future capital raising transactions.

Most of our outstanding convertible preferred stock and convertible notes contain variable pricing mechanisms. The number of shares that we will issue pursuant to the aforementioned financial instruments will fluctuate based on the price of our common stock. Depending on market liquidity at the time, sales of such shares into the market may cause the trading price of our common stock to fall.

The issuance of material amounts of common stock by us would cause our existing stockholders to experience significant dilution in their investment in our Company. Also, if we obtain additional financing involving the issuance of equity securities or securities convertible into equity securities, our existing stockholders' investment would be further diluted. Such dilution could cause the market price of our common stock to decline, which could impair our ability to raise additional financing.

Sales of a significant number of shares of our common stock in the public markets or significant short sales of our stock, or the perception that such sales could occur, could depress the market price of our common stock and impair our ability to raise capital. Sales of a substantial number of shares of our common stock or other equity-related securities in the public markets could depress the market price of our common stock. If there are significant short sales of our stock, the price decline that could result from this activity may cause the share price to decline more so, which, in turn, may cause long holders of the stock to sell their shares, thereby contributing to sales of stock in the market. Such sales also may impair our ability to raise capital through the sale of additional equity securities in the future at a time and price that our management deems acceptable, if at all. In addition, a large number of our outstanding shares are not registered under the Securities Act. If and when these shares are registered or become eligible for sale to the public market, the market price of our common stock could also decline.

Our common stock has been delisted from the NASDAQ Capital Market and the OTCQB Venture Market. Our inability to maintain our prior listings on NASDAQ and OTCQB may limit the liquidity of our stock, increase its volatility and hinder our ability to raise capital. On February 25, 2016, our common stock was delisted from the NASDAQ Capital Market and began trading on the OTCQB Venture Market. On May 20, 2017 our common stock was delisted from the OTCQB Venture Market and began trading on the OTCBB.

Upon such delisting from NASDAQ, our common stock became subject to the regulations of the SEC relating to the market for penny stocks. A penny stock is any equity security not traded on a national securities exchange that has a market price of less than $5.00 per share. The regulations applicable to penny stocks may severely affect the market liquidity for our common stock and could limit the ability of shareholders to sell securities in the secondary market. Accordingly, investors in our common stock may find it more difficult to dispose of or obtain accurate quotations as to the market value of our common stock, and there can be no assurance that our common stock will be continue to be eligible for trading or quotation on the OTCBB or any other alternative exchanges or markets.

The delisting of our common stock from the NASDAQ Capital Market and the OTCQB Venture Market may adversely affect our ability to raise additional financing through public or private sales of equity securities, may significantly affect the ability of investors to trade our securities, and may negatively affect the value and liquidity of our common stock. Such delisting from the NASDAQ Capital Market and the OTCQB Venture Market may also have other negative results, including the potential loss of confidence by employees, the loss of institutional investor interest and fewer business development opportunities.

Some provisions of our charter documents and Delaware law may have anti-takeover effects that could discourage an acquisition of us by others, even if an acquisition would be beneficial to our stockholders, and may prevent attempts by our stockholders to replace or remove our current management. Provisions in our Amended and Restated Certificate of Incorporation and Second Amended and Restated Bylaws, each as amended, as well as provisions of Delaware law, could make it more difficult for a third party to acquire us, or for a change in the composition of our Board of Directors (our "Board") or management to occur, even if doing so would benefit our stockholders. These provisions include:

- Authorizing the issuance of "blank check" preferred stock, the terms of which may be established and shares of which may be issued without stockholder approval;
- Dividing our Board into three classes;
- Limiting the removal of directors by the stockholders; and
- Limiting the ability of stockholders to call a special meeting of stockholders.

In addition, we are subject to Section 203 of the Delaware General Corporation Law, which generally prohibits a Delaware corporation from engaging in any of a broad range of business combinations with an interested stockholder for a period of three years following the date on which the stockholder became an interested stockholder, unless such transactions are approved by our Board. This provision could have the effect of delaying or preventing a change of control, whether or not it is desired by, or beneficial to, our stockholders.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

We own an approximately 138,000 square foot manufacturing and office facility in Thornton, Colorado.

Item 3. Legal Proceedings

None.

Item 4. Mine Safety Disclosures

Not applicable.

PART II

Item 5. Market For Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities
Market Information

Our stock previously traded on the NASDAQ Capital Market. On February 23, 2016 the Company received notice from NASDAQ stating that NASDAQ had determined to delist the Company's common stock. On May 20, 2017 our common stock was delisted from the OTCQB Venture Market and began trading on the OTCBB. Our trading symbol is "ASTI." The following table sets forth the high and low sales price information per share for our common stock for the last two completed fiscal years, as adjusted for reverse stock splits.

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Price Range of Common Stock

		High		Low
Fiscal 2017				
First Quarter	$	7.8000	$	1.4000
Second Quarter	$	2.3000	$	0.3000
Third Quarter	$	2.6000	$	0.4000
Fourth Quarter	$	1.8000	$	0.7000
Fiscal 2018				
First Quarter	$	0.7000	$	0.3000
Second Quarter	$	0.5000	$	0.0003
Third Quarter	$	0.3000	$	0.0420
Fourth Quarter	$	0.0600	$	0.0080

Holders

As of December 31, 2018, the number of record holders of our common stock was 41. Because many of our shares of common stock are held by brokers and other institutions on behalf of stockholders, we are unable to estimate the total number of stockholders represented by these record holders.

Dividends

The holders of common stock are entitled to receive such dividends as may be declared by our Board of Directors. During the years ended December 31, 2018 and 2017, we did not pay any common stock dividends, and we do not expect to declare or pay any dividends in the foreseeable future. Payment of future dividends will be within the discretion of our Board of Directors and will depend on, among other factors, our retained earnings, capital requirements, and operating and financial condition.

Item 6. Selected Financial Data

Smaller reporting companies are not required to provide the information required by this Item.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

The following discussion of our financial condition and results of operations should be read in conjunction with our audited financial statements and the notes to those financial statements appearing elsewhere in this Form 10-K. This discussion and analysis contains statements of a forward-looking nature relating to future events or our future financial performance. As a result of many factors, our actual results may differ materially from those anticipated in these forward-looking statements. These statements involve known and unknown risks, uncertainties and other factors that may cause our actual results, levels of activity, performance or achievements to be materially different from any future results, levels of activity, performance or achievements expressed or implied by these forward-looking statements.

Overview

We are a company formed to commercialize flexible PV modules using our proprietary technology. For the year ended December 31, 2018, we generated $862,412 of revenue. Our revenue of $813,512 from product sales accounted for 94% of total revenue and $48,900 of revenue generated from government research and development contracts during the year accounted for the remainder. As of December 31, 2018, we had an accumulated deficit of approximately $419 million.

In 2012, we evolved our business model to include B2C, solution based, PV integrated consumer electronics to our off grid high value solar power generation strategy. In June of 2012, we launched our new line of consumer products under the EnerPlex™ brand, and introduced our first product, the Surfr™; a battery and solar case for the Apple® iPhone® 4/4S smart phone featuring our ultra-light CIGS thin film technology integrated directly into the case. The case incorporates our ultra-light and thin PV module into a sleek, protective iPhone 4/4S case, along with a thin, life extending, lithium-polymer battery. The case adds minimal weight and size to an iPhone smartphone, yet provides supplemental charging when needed. In August of 2012, we announced the launch of the second version of the Surfr for the Samsung® Galaxy S® III, which provides 85% additional battery life.

In December 2012, we launched the EnerPlex Kickr™ and EnerPlex Jumpr™ product series. The Kickr IV was an extremely portable, compact and durable solar charging device, approximately seven inches by seven inches when folded, and weighs less than half a pound. The Kickr IV provides 6.5 watts of regulated power that can help charge phones, digital cameras, and other small USB enabled devices. The Kickr IV is ideal for outdoor activities such as camping, hiking and mountain climbing as well as daily city use. To complement the Kickr IV, we also released the Jumpr series of portable power banks in December of 2012. The Jumpr series provides a compact power storage solution for those who need to recharge their portable electronics while on the go.

During 2013, the EnerPlex brand rapidly expanded with the addition of two new product series as well as over fifteen new products. In 2013, we introduced further additions to the Jumpr line of portable power banks; releasing the Jumpr Mini and Jumpr Stack in August and the Jumpr Max in September. The latest additions to the Kickr line of portable solar chargers, the Kickr I and Kickr II, were introduced in August at the Outdoor Retailer show. In October 2013, we released our first series of solar integrated backpacks, the EnerPlex Packr™. The Packr is a functional backpack ideal for charging mobile electronic devices while on the go. Also in October of 2013, we introduced the Surfr battery and solar case for the Samsung Galaxy S® 4, and in December 2013, we introduced the Surfr battery and solar case for Apple's iPhone® 5. To complement our flagship product lines, we added an assortment of accessories, all of which can be integrated into the EnerPlex ecosystem of products; the LED wand, which can be easily plugged into a Jumpr power bank to provide hours of light, or the Travel Adaptor, which enables consumers to charge up their Jumpr power banks from a traditional outlet anywhere in the world.

Beginning in 2013, we aggressively pursued new distribution channels for the EnerPlex brand; these activities led to placement in a variety of high-traffic ecommerce venues such as www.amazon.com, www.walmart.com, www.brookstone.com, www.newegg.com, as well as many others including our own e-commerce platform at www.goenerplex.com. The April 2013 placement of EnerPlex products at Fry's Electronics, a US West Coast consumer electronics retailer, represented the company's first domestic retail presence; EnerPlex products were carried in all of Fry's 34 superstores across 9 states.

Throughout 2014, EnerPlex released multiple additions to the Jumpr line of products: including the Jumpr Stack 3, 6 and 9; innovative batteries equipped with tethered micro-USB and Apple Lightning cables with a revolutionary Stack and Charge design, enabling batteries to be charged simultaneously when they are placed on top of one another. Also released in 2014 were the Jumpr Slate series, products which push the boundaries of how thin batteries can be; the Jumpr Slate 10k, at less than 7mm thick was the thinnest lithium polymer battery available when it was released. The Jumpr Slate 5k and 5k Lightning each come with a tethered micro-USB and Lightning cable respectively; freeing consumers from worrying about toting extra cables with them while on the move.

At Outdoor Retailer 2014, EnerPlex debuted the Generatr Series. The Generatr 1200 and Generatr 100 are lithium-ion based, large format batteries. Lighter and smaller than competitors, the Generatr Series are targeted for consumers who require high-capacity, high-output batteries which remain ultra-portable. Also debuted at Outdoor Retailer was the Commandr 20, a high output solar charger designed specifically to integrate with and charge the Generatr series, allowing consumers to stay out longer without needing to charge their Generatr batteries from a traditional power source. In August 2014, the Kickr II+ and IV+ were also announced, these products represent another evolution in the EnerPlex line of solar products; integrated with a 500mAh battery the Kickr II+ and IV+ are able to provide a constant flow of power even when there are intermittent disruptions in sunlight.

During 2015, we reached an agreement with EVINE Live, one of the premier home shopping networks with TV programming that reaches over 87 million US homes to begin selling EnerPlex products during their broadcasts. EnerPlex launched the Generatr S100 and select other products exclusively with EVINE, EnerPlex also launched the Generatr 1200 launched exclusively with EVINE for a limited period. Also during 2015, EnerPlex expanded its relationship with The Cellular Connection to include over 450 Verizon Wireless Premium Retail Stores; launched its products with two world recognized retailers; The Sports Authority and Cabela's; and launched its products with GovX; the premier online shopping destination for Military, Law Enforcement and Government agencies. Internationally, EnerPlex products became available in the United Kingdom via the brand's launch with 172 Maplin's stores throughout the country.

In 2016, EnerPlex launched the new emergency sales vertical, partnering with Emergency Preparedness eCommerce leader, Emergency Essentials, and we announced new breakthroughs in the Company's line of high-voltage solar products, designed specifically for high-altitude and space markets. Also during the first quarter of 2016, the Company announced the launch of select products on the GSA Advantage website; allowing Federal employees, including members of all branches of the US Military, to directly purchase Ascent and EnerPlex products including: the MilPak E, Commandr 20, Kickr 4 and WaveSol™ solar modules.

In January 2017, Ascent was awarded a contract to supply high-voltage SuperLight thin-film CIGS PV blankets. These 50W, fully laminated, flexible blankets were manufactured using a new process that was optimized for high performance in near-space conditions at elevated temperatures, and are custom designed for easy modular integration into series and parallel configurations to achieve the desired voltage and current required for such application.

In February 2017 Ascent announced the discontinuation of our EnerPlex consumer business by disposing of the EnerPlex brand, and related intellectual properties and trademarks, to our battery product supplier, Sun Pleasure Co. Limited (“SPCL”). This transaction was completed in an effort to better allocate our resources and to continue to focus on our core strength in the high-value specialty PV market. Following the transfer, Ascent will no longer be producing or selling Enerplex-branded consumer products. Ascent will focus on its photovoltaic business and will supply solar PV products to SPCL, supporting the continuous growth of EnerPlex with Ascent’s proprietary and award-winning thin-film solar technologies and products.

During the third quarter of 2017, Ascent Solar was selected by Energizer to develop and supply solar panels for their PowerKeep line of solar products, and in November 2017, Ascent introduced the next generation of our USB-based portable power systems with the XD™ series. The first product introduced was the XD-12 which, like previous products, is a folding, lightweight, easily stowable, PV system with USB power regulation. Unique to this generation of PV portable power is more PV power (12 Watts) and a 2.0 Amp smart USB output to enable the XD-12 to charge most smartphones, tablets, and USB-enabled devices as fast as a wall outlet. The enhanced smart USB circuit works with the device to be charged so that the device can determine the maximum power it is able to receive from the XD-12, and ensures the best possible charging performance directly from the sun.

Also in 2017, for a space customer, Ascent manufactured a new micro-module, approximately 12.8mm x 50mm (0.5in x 2.0in) in size that is ideal for both laboratory-scale environmental testing, and for subsequent integration into flight experiments.

In February 2018, the Company introduced the second product in our XD series. Delivering up to 48 Watts of solar power, the durable and compact Ascent XD-48 Solar Charger is the ideal solution for charging many portable electronics and off-grid power systems. The XD-48’s versatility allows it to charge both military and consumer electronics directly from the sun wherever needed. Like the XD-12, the XD-48 has a compact and portable design, and its rugged, weather-resistant construction withstands shocks, drops, damage and even minor punctures to power through the harshest conditions.

In March 2018, Ascent successfully shipped to a European based customer for a lighter-than-air, helium-filled airship project based on our newly developed ultra-light modules with substrate material than half of the thickness of our standard modules.

We continue to design and manufacture PV integrated consumer electronics as well as portable power applications for commercial and military users. Due to the high durability enabled by the monolithic integration employed by our technology, the capability to customize modules into different form factors and the industry leading light weight and flexibility provided by our modules, we believe that the potential applications for our products are numerous.

Commercialization and Manufacturing Strategy

We manufacture our products by affixing a thin CIGS layer to a flexible, plastic substrate using a large format, roll-to-roll process that permits us to fabricate our flexible PV modules in an integrated sequential operation. We use proprietary monolithic integration techniques which enable us to form complete PV modules with little to no costly back end assembly of inter cell connections. Traditional PV manufacturers assemble PV modules by bonding or soldering discrete PV cells together. This manufacturing step typically increases manufacturing costs and at times proves detrimental to the overall yield and reliability of the finished product. By reducing or eliminating this added step using our proprietary monolithic integration techniques, we believe we can achieve cost savings in, and increase the reliability of, our PV modules. All tooling necessary for us to meet our near term production requirements is installed in our Thornton, Colorado plant. In 2012, we further revised our strategy to focus on applications for emerging and high-value specialty PV markets, including off grid, aerospace, military and defense and consumer oriented products.

We plan to continue the development of our current PV technology to increase module efficiency, improve our manufacturing tooling and process capabilities and reduce manufacturing costs. We also plan to continue to take advantage of research and development contracts to fund a portion of this development.

Related Party Activity

On February 2, 2012, we announced the appointment of Victor Lee as President and Chief Executive Officer. Mr. Lee has served on our Board since November 2011 and is currently the managing director of Tertius Financial Group Pte Ltd ("TFG").

TFG is a Singapore based entity controlled and 50% owned by Ascent's President & CEO, Victor Lee, and owns approximately 1% of the Company's outstanding shares at December 31, 2018.

On August 29, 2016, the Company entered into a note purchase agreement with Tertius Financial Group Pte. Ltd. ("TFG") for the private placement of $330,000 of the Company's original issue discount notes with an original maturity date of November 29, 2016. The notes bear interest of 6% per annum and principal and interest on the notes are payable upon maturity. The notes are unsecured and not convertible into equity shares of the Company.

On December 6, 2016, the Company issued a new $600,000 original issue discount note to TFG in exchange for (i) $200,000 of additional gross proceeds and (ii) cancellation of the existing outstanding $330,000 note. The new TFG note bears interest at a rate of 6% per annum and matured on December 31, 2017. Principal and interest on the new TFG note were payable at maturity. Following the transaction, the outstanding balance of the new note was $602,000 (including accrued and unpaid interest) with a discount of $60,000.

On January 19, 2017, the Company issued 333,334 shares of unregistered common stock in a private placement to TFG pursuant to a Securities Purchase Agreement (the "SPA").

Pursuant to the SPA, the Company issued the 333,334 shares to TFG in exchange for cancellation of its $600,000 promissory note (including accrued interest of approximately $4,340) that was issued by the Company on December 6, 2016. The SPA does not provide any registration rights for the shares issued to TFG.

Significant Trends, Uncertainties and Challenges

We believe the significant trends, uncertainties and challenges that directly or indirectly affect our financial performance and results of operations include:

- Our ability to generate customer acceptance of and demand for our products;
- Successful ramping up of commercial production on the equipment installed;
- Our products are successfully and timely certified for use in our target markets;
- Successful operating of production tools to achieve the efficiencies, throughput and yield necessary to reach our cost targets;
- The products we design are saleable at a price sufficient to generate profits;
- Our ability to raise sufficient capital to enable us to reach a level of sales sufficient to achieve profitability on terms favorable to us;
- Effective management of the planned ramp up of our domestic and international operations;
- Our ability to successfully develop and maintain strategic relationships with key partners, including OEMs, system integrators, distributors, retailers and e-commerce companies, who deal directly with end users in our target markets;
- Our ability to maintain the listing of our common stock on the OTCBB Market;
- Our ability to implement remediation measures to address material weaknesses in internal control;
- Our ability to achieve projected operational performance and cost metrics;
- Our ability to enter into commercially viable licensing, joint venture, or other commercial arrangements; and
- Availability of raw materials.

Basis of Presentation: The accompanying consolidated financial statements have been derived from the accounting records of Ascent Solar Technologies, Inc., Ascent Solar (Asia) Pte. Ltd., and Ascent Solar (Shenzhen) Co., Ltd. (collectively, "the Company") as of December 31, 2018 and December 31, 2017, and the results of operations for the years ended December 31, 2018 and 2017. Ascent Solar (Shenzhen) Co., Ltd. is wholly owned by Ascent Solar (Asia) Pte. Ltd., which is wholly owned by Ascent Solar Technologies, Inc. All significant inter-company balances and transactions have been eliminated in the accompanying consolidated financial statements.

Significant Accounting Policies

Related Party Transactions: One of the Company's named shareholders is Tertius Financial Group Pte Ltd of which Mr. Victor Lee, President and Chief Executive Officer of the Company, is Managing Director and 50% shareholder. Please refer to Note 11 for further information on transactions with Tertius Financial Group.

Inventories: All inventories are stated at the lower of cost or net realizable value, with cost determined using the weighted average method. Inventory balances are frequently evaluated to ensure they do not exceed net realizable value. The computation for net realizable value takes into account many factors, including expected demand, product life cycle and development plans, module efficiency, quality issues, obsolescence and others. Management's judgment is required to determine reserves for obsolete or excess inventory. As of December 31, 2018 and 2017, the Company had inventory reserve balances of $745,927 and $562,140, respectively. In response to management's estimate of current market conditions, the Company has reserved all of its work-in-process and finished goods inventory as of December 31, 2018. If actual demand and market conditions are less favorable than those estimated by management, additional inventory write downs may be required.

Due to the sale of the EnerPlex brand and the re-purposing of our work-in-process inventory, we are unable to estimate the recoverability of all of our work-in process inventory values, resulting in a lower-cost-to-market analysis and reserve for impairment. An expense of $363,377 was recorded to inventory impairment costs for the year ended December 31, 2017. There were no lower of cost or market adjustments during the year ended December 31, 2018.

Impairment of Long-lived assets: We analyze our long-lived assets (property, plant and equipment) and definitive-lived intangible assets (patents) for impairment, both individually and as a group, whenever events or changes in circumstances indicate the carrying amount of the assets may not be recoverable. Events that might cause impairment would include significant current period operating or cash flow losses associated with the use of a long-lived asset or group of assets combined with a history of such losses, significant changes in the manner of use of assets and significant negative industry or economic trends. An undiscounted cash flow analysis is calculated to determine if an impairment exists. If an impairment is determined to exist, any related loss is calculated using the difference between the fair value and the carrying value of the assets. During the years ended December 31, 2018 and 2017, we did not incur impairments of our manufacturing facilities and equipment.

Convertible Preferred Stock: The Company evaluates its preferred stock instruments under FASB ASC 480, *"Distinguishing Liabilities from Equity"* to determine the classification, and thereby the accounting treatment, of the instruments. Please refer to Notes 13 and 14 for further discussion on the classification of each instrument.

Derivatives: The Company evaluates its financial instruments under FASB ASC 815, *"Derivatives and Hedging"* to determine whether the instruments contain an embedded derivative. When an embedded derivative is present, the instrument is evaluated for a fair value adjustment upon issuance and at the end of every period. Any adjustments to fair value are treated as gains and losses in fair values of derivatives and are recorded on the Statement of Operations. Please refer to Notes 10 and 12 for further discussion on the embedded derivatives of each instrument.

Revenue Recognition:

Product revenue. We recognize revenue for module and other equipment sales at a point in time following the transfer of control of such products to the customer, which typically occurs upon shipment or delivery depending on the terms of the underlying contracts. For module and other equipment sales contracts that contain multiple performance obligations, we allocate the transaction price to each performance obligation identified in the contract based on relative standalone selling prices, or estimates of such prices, and recognize the related revenue as control of each individual product is transferred to the customer, in satisfaction of the corresponding performance obligations.

During the years ended December 31, 2018 and 2017, the company recognized product revenue of $813,512 and $642,179, respectively.

Government contracts revenue. Revenue from government research and development contracts is generated under terms that are cost plus fee or firm fixed price. We generally recognize this revenue over time using cost based input methods, which recognize revenue and gross profit as work is performed based on the relationship between actual costs incurred compared to the total estimated costs of the contract. In applying cost based input methods of revenue recognition, we use the actual costs incurred relative to the total estimated costs to determine our progress towards contract completion and to calculate the corresponding amount of revenue to recognize.

Cost based input methods of revenue recognition are considered a faithful depiction of our efforts to satisfy long-term government research and development contracts and therefore reflect the performance obligations under such contracts. Costs incurred that do not contribute to satisfying our performance obligations are excluded from our input methods of revenue recognition as the amounts are not reflective of our transferring control under the contract. Costs incurred towards contract completion may include direct costs plus allowable indirect costs and an allocable portion of the fixed fee. If actual and estimated costs to complete a contract indicate a loss, provision is made currently for the loss anticipated on the contract.

During the year ended December 31, 2018, the company recognized government contract revenue of $48,900. No government contract revenue was recognized for the year ended December 31, 2017.

Research, Development and Manufacturing Operations Costs: Research, development and manufacturing operations expenses were approximately $2,794,641 and $4,820,536 for the years ended December 31, 2018 and 2017, respectively. Research, development and manufacturing operations expenses include: 1) technology development costs, which include expenses incurred in researching new technology, improving existing technology and performing federal government research and development contracts, 2) product development costs, which include expenses incurred in developing new products and lowering product design costs, and 3) pre-production and production costs, which include engineering efforts to improve production processes, material yields and equipment utilization, and manufacturing efforts to produce saleable product. Research, development and manufacturing operations costs are expensed as incurred, with the exception of costs related to inventoried raw materials, work-in-process and finished goods, which are expensed as Cost of revenue as products are sold.

Share-Based Compensation: We measure and recognize compensation expense for all share-based payment awards made to employees, officers, directors, and consultants based on estimated fair values. The value of the portion of the award that is ultimately expected to vest is recognized as expense over the requisite service period in our statements of operations included herein. Share-based compensation is based on awards ultimately expected to vest, reduced by estimated forfeitures. Forfeitures are estimated at the time of grant and revised, as necessary, in subsequent periods if actual forfeitures differ from those estimates. For purposes of determining estimated fair value of share-based payment awards on the date of grant, we use the Black-Scholes option-pricing model ("Black-Scholes Model") for option awards. The Black-Scholes Model requires the input of highly subjective assumptions. Because our employee stock options may have characteristics significantly different from those of traded options, and because changes in the subjective input assumptions can materially affect the fair value estimate, in management's opinion, the existing models may not provide a reliable single measure of the fair value of our employee stock options. Management will continue to assess the assumptions and methodologies used to calculate estimated fair value of share-based compensation. Circumstances may change and additional data may become available over time, which result in changes to these assumptions and methodologies, which could materially impact our fair value determination. We estimate the fair value of our restricted stock awards at our stock price on the grant date.

The accounting guidance for share-based compensation may be subject to further interpretation and refinement over time. There are significant differences among option valuation models, and this may result in a lack of comparability with other companies that use different models, methods and assumptions. If factors change and we employ different assumptions in the accounting for share-based compensation in future periods, or if we decide to use a different valuation model, the compensation expense we record in the future may differ significantly from what we have recorded in the current period and could materially affect our loss from operations, net loss and net loss per share.

Use of Estimates: The preparation of financial statements in conformity with U.S. generally accepted accounting principles ("GAAP") requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Recently Issued Accounting Standards

In May 2014, the FASB issued ASU No. 2014-09, *Revenue from Contracts with Customers (Topic 606)*, and has issued a number of clarifying ASUs subsequently, all of which outline a single comprehensive model for entities to use in accounting for revenue arising from contracts with customers and supersedes most current revenue recognition guidance, including industry-specific guidance. The core principle of the revenue model is that "an entity recognizes revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services." The standard provides enhancements to the quality and consistency of how revenue is reported by companies, while also improving comparability in the financial statements of companies reporting using International Financial Reporting Standards or U.S. GAAP. The new standard also will require enhanced revenue disclosures, provide guidance for transactions that were not previously addressed comprehensively, and improve guidance for multiple-element arrangements. This accounting standard becomes effective for the Company for reporting periods beginning after December 15, 2017, and interim reporting periods thereafter. Early adoption is permitted for annual reporting periods (including interim periods) beginning after December 15, 2016. This new standard permits the use of either the retrospective or cumulative effect transition method. The implementation of ASU 2014-09 did not have a material effect on the Company's consolidated financial statements.

In February 2016, the FASB issued ASU No. 2016-02, *Leases (Topic 842)*. ASU 2016-02 requires lessees to recognize all leases, including operating leases, on the balance sheet as a lease asset or lease liability, unless the lease is a short-term lease. ASU 2016-02 also requires additional disclosures regarding leasing arrangements. ASU 2016-02 is effective for interim periods and fiscal years beginning after December 15, 2018, and early application is permitted. The Company has evaluated the adoption of this guidance and has determined there will not be a material impact on its consolidated financial statements.

In May 2017, the FASB issued ASU No. 2017-09, *Compensation - Stock Compensation (Topic 718)*. ASU 2017-09 provides guidance about which changes to the terms or conditions of a share-based payment award require an entity to apply modification accounting in Topic 718. ASU 2017-09 is effective for interim periods and fiscal years beginning after December 15, 2017, and early application is permitted. The implementation of ASU 2017-09 did not have a material effect on the Company's consolidated financial statements.

In July 2017, the FASB issued ASU No. 2017-11 *Part I, Earnings Per Share (Topic 260), Distinguishing Liabilities from Equity (Topic 480), Derivatives and Hedging (Topic 815)*. ASU 2017-11 Part I changes the classification analysis of certain equity linked financial instruments with down round features. ASU 2017-11 Part I is effective, for public business entities, for interim periods and fiscal years beginning after December 15, 2018, and early application is permitted. The Company has evaluated the adoption of this guidance and has determined there will not be a material impact on its consolidated financial statements.

In June 2018, the FASB issued ASU No. 2018-07, *Compensation-Stock Compensation (Topic 718): Improvements to Non-employee Share-Based Payment Accounting*, which simplifies the accounting for share-based payments to non-employees by aligning it with the accounting for share-based payments to employees, with specified exceptions. This standard is effective for the Company in the first quarter of 2020, and early adoption is permitted. The Company expects the adoption of this standard will not have a material impact on its consolidated financial statements.

In August 2018, the FASB issued ASU No. 2018-13, *Fair Value Measurement (Topic 820): Disclosure Framework-Changes to the Disclosure Requirements for Fair Value Measurement*, which modifies the disclosure requirements of fair value measurements. This standard is effective for the Company in the first quarter of 2020, and early adoption is permitted. The Company is currently evaluating the impact of the effect adoption of this standard will have on its consolidated financial statements.

Other new pronouncements issued but not effective as of December 31, 2018 are not expected to have a material impact on the Company’s consolidated financial statements.

Results of Operations

Comparison of the Years Ended December 31, 2018 and 2017

Revenues. Our revenues were $862,412 for the year ended December 31, 2018 compared to $642,179 for the year ended December 31, 2017, an increase of $220,233. The following factors contributed to this increase:

1. Net product revenues were $813,512 for the year ended December 31, 2018 compared to $642,179 for the year ended December 31, 2017, an increase of $171,333. The increase in product sales is the result of our increased focus on PV sales.

2. Revenues generated from government research and development contracts were $48,900 during the year ended December 31, 2018, the Company did not have any revenues attributable to government research and development contracts during the year ended December 31, 2017.

Cost of revenues. Our Cost of revenues for the year ended December 31, 2018 was $1,015,796 compared to $2,814,782 for the year ended December 31, 2017, a decrease of $1,798,986. The decrease in cost of revenues is mainly due to the decrease in materials and labor costs as a result of a decrease in production for the year ended December 31, 2018 compared to 2017. Cost of revenues for the year ended December 31, 2018 is comprised of materials and freight of $370,142, direct labor of $2,930, and overhead of $642,724. Management believes our factory is currently significantly under-utilized, and a substantial increase in revenue would result in marginal increases to Direct Labor and Overhead included in the Cost of revenues. As such management’s focus going forward is to improve gross margin through increased sales and improved utilization of our factory. We are currently pursuing high-value PV markets.

Research, development and manufacturing operations. Research, development and manufacturing operations costs were $2,794,641 for the year ended December 31, 2018, compared to $4,820,536 for the year ended December 31, 2017, a decrease of $2,025,895. Research, development and manufacturing operations costs include costs incurred for product development, pre-production and production activities in our manufacturing facility. Research, development and manufacturing operations costs also include costs related to technology development and governmental contracts. The following factors contributed to the decrease in research, development, and manufacturing operations expenses during the year ended December 31, 2018:

1. Personnel and facility related expenses decreased approximately $1,941,932, as compared to the same time period of 2017. The decrease in personnel and facility related costs was primarily due to a reduction in headcount and the use of contractors.

2. Materials and equipment related expenses, decreased approximately $83,963, as compared to the same time period of 2017. The decrease was due to a decrease in production of research and development products.

Inventory impairment costs. Due to the sale of the EnerPlex brand and the re-purposing of our work-in-process inventory, we were unable to estimate the recoverability of all of our work-in process inventory values, resulting in a lower-cost-to-market analysis and reserve for impairment. An expense of $363,377 was recorded to inventory impairment costs for the year ended December 31, 2017. There was no corresponding impairment for the year ended December 31, 2018.

Selling, general and administrative. Selling, general and administrative expenses were $3,244,793 for the year ended December 31, 2018, compared to $5,598,004 for the year ended December 31, 2017, a decrease of $2,353,211. The following factors contributed to the decrease in selling, general, and administrative expenses during the year ended December 31, 2018:

1. Personnel and facility related costs decreased $2,288,728 during the year ended December 31, 2018, as compared to the the year ended December 31, 2017. The overall decrease in personnel related costs was primarily due a lower headcount for the the year ended December 31, 2018, as compared to the the year ended December 31, 2017 as well as the decreased use of consultants and contractors during the same period.

2. Marketing and related expenses decreased $163,760 during the year ended December 31, 2018, as compared to the the year ended December 31, 2017. The decrease in Marketing and related expenses is due to reduced marketing, advertising, and promotional activities during the the year ended December 31, 2018, compared to the same time period of 2017, which is the direct result of reducing our marketing budget to focus more on the development of our PV.

3. Legal expenses increased $308,277 during the year ended December 31, 2018, as compared to the the year ended December 31, 2017. The primary reasons for the increase is due to increased general legal expenses related to financing efforts as compared to the the year ended December 31, 2017, offset by decreases in legal expenses related to our patent activity as compared to the same period of 2017.

4. Public company expenses decreased $2,908 during the year ended December 31, 2018, as compared to the the year ended December 31, 2017. This decrease is primarily due to reduced filing fees related to financing agreements in 2018, as compared to 2017.

5. Bad debt and settlement expenses decreased approximately $206,092 during the year ended December 31, 2018, as compared to the year ended December 31, 2017. During 2017 we recorded payments and settlements against existing reserves. We did not have settlement expenses during 2018.

Other Expense, net. Other expense was $9,466,368 for the year ended December 31, 2018, compared to $4,412,075 for the the year ended December 31, 2017, an increase of approximately $5,054,293. The following factors contributed to the increase in other expense during the year ended December 31, 2018:

1.

Interest expense increased approximately $832,934, as compared to the year ended December 31, 2017. The increase is primarily due to an increase of non-cash interest expense related to convertible debt and promissory notes.

2. During the year ended December 31, 2017, the Company recorded net other income of $574,817. This income was comprised of $1,210,331 increase in gain on sale of assets after the transfer of the EnerPlex IP, offset by induced conversion costs of $635,514 on several of the financial instruments. During the the year ended December 31, 2018, the Company recorded net other income of $13,144, primarily as the result of a sale of assets; an income reduction of $561,673.

3. During the year ended December 31, 2017, the Company recorded warrant expense of $345,774. There was no such expense during the year ended December 31, 2018.

4. Gains and losses on change in fair value of derivatives and on extinguishment of liabilities, was a net loss of $2,127,831 for the year ended December 31, 2018, as compared to a net gain of $1,877,629 for the year ended December 31, 2017. The change of $4,005,460 in this non-cash item is attributable to a net loss of $138,392 on the change in fair value of our embedded derivative instruments during the year ended December 31, 2018, compared to a net gain $4,450,518 in 2017, offset by a reduction in the loss from extinguishment of liabilities of $306,666, related to conversions and redemptions of certain convertible notes and preferred stock, for the year ended December 31, 2018, as compared to the the year ended December 31, 2017.

Net Loss. Our Net Loss was $16,036,492 for the year ended December 31, 2018, compared to a Net Loss of $18,560,130 for the year ended December 31, 2017, an improvement of $2,523,638.

The decrease in Net Loss for the year ended December 31, 2018 can be summarized in variances in significant account activity as follows:

	(Increase) decrease in Net Loss For the Year Ended December 31, 2018 Compared to the Year Ended December 31, 2017
Revenues	(220,233)
Cost of Revenue	1,798,986
Research, development and manufacturing operations	
Materials and Equipment Related Expenses	83,963
Personnel and Facility Related Expenses	1,941,932
Inventory impairment costs	363,377
Selling, general and administrative expenses	
Personnel, Administrative, and Facility Related Expenses	2,288,728
Marketing Related Expenses	163,760
Legal Expenses	(308,277)
Public Company Costs	2,908
Bad Debt Expense	206,092
Depreciation and Amortization Expense	816,229
Other Income/Expense	
Interest Expense	832,934
Other Income/Expense	561,673
Warrant Expense	(345,774)
Non-Cash Change in Fair Value of Derivative Liabilities and Gain/Loss on Extinguishment of Liabilities, net	4,005,460
Decrease to Net Loss	$ 2,523,638

Liquidity and Capital Resources

The Company has continued limited PV production at its manufacturing facility. The Company does not expect that sales revenue and cash flows will be sufficient to support operations and cash requirements until it has fully implemented its product strategy. During the year ended December 31, 2018 the Company used $4,015,846 in cash for operations. The Company's primary significant long term cash obligation consists of a note payable of $5,378,062 to a financial institution secured by a mortgage on its headquarters and manufacturing building in Thornton, Colorado. Total payments of approximately $693,611, including principal and interest, will come due in the remainder of 2019.

Additional projected product revenues are not anticipated to result in a positive cash flow position for the year 2019 overall and, as of December 31, 2018, the Company has negative working capital. As such, cash liquidity sufficient for the year ending December 31, 2019 will require additional financing.

The Company continues to accelerate sales and marketing efforts related to its consumer and military solar products and specialty PV application strategies through expansion of its sales and distribution channels. The Company has begun activities related to securing additional financing through strategic or financial investors, but there is no assurance the Company will be able to raise additional capital on acceptable terms or at all. If the Company's revenues do not increase rapidly, and/or additional financing is not obtained, the Company will be required to significantly curtail operations to reduce costs and/or sell assets. Such actions would likely have an adverse impact on the Company's future operations.

As a result of the Company’s recurring losses from operations, and the need for additional financing to fund its operating and capital requirements, there is uncertainty regarding the Company’s ability to maintain liquidity sufficient to operate its business effectively, which raises substantial doubt as to the Company’s ability to continue as a going concern. The Company has scaled down its operations, due to cash flow issues, and does not expect to ramp up until significant financing is obtained.

Management cannot provide any assurances that the Company will be successful in accomplishing any of its plans. These consolidated financial statements do not include any adjustments that might be necessary should the Company be unable to continue as a going concern.

Statements of Cash Flows Comparison of the Years Ended December 31, 2018 and 2017

For the year ended December 31, 2018, our cash used in operations was $4,015,846 compared to $12,597,929 for the year ended December 31, 2017, a decrease of $8,582,083. The decrease is primarily the result of reduced operations during the current year. For the year ended December 31, 2018, cash used in investing activities was $2,447 compared to cash provided by investing activities of $80,946 for the year ended December 31, 2017. This decrease was the result of a reduction in proceeds on the sale assets, offset by reduced spending on capital assets and patents. During the year ended December 31, 2018, negative operating cash flows of $4,015,846 million were funded through $4,103,500 million in new debt issuances, offset by repayments on debt of $145,666 and payment of financing costs of $11,000.

Off Balance Sheet Transactions

As of December 31, 2018, we did not have any off balance sheet arrangements as defined in Item 303(a)(4)(ii) of Regulation S-K.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Foreign Currency Exchange Risk

We hold no significant funds and have no future obligations denominated in foreign currencies as of December 31, 2018.

Although our reporting currency is the U.S. Dollar, we may conduct business and incur costs in the local currencies of other countries in which we may operate, make sales and buy materials. As a result, we are subject to currency translation risk. Further, changes in exchange rates between foreign currencies and the U.S. Dollar could affect our future net sales and cost of sales and could result in exchange losses.

Interest Rate Risk

Our exposure to market risks for changes in interest rates relates primarily to our cash equivalents and investment portfolio. As of December 31, 2018, our cash equivalents consisted only of operating accounts held with financial institutions. From time to time, we hold restricted funds, money market funds, investments in U.S. government securities and high quality corporate securities. The primary objective of our investment activities is to preserve principal and provide liquidity on demand, while at the same time maximizing the income we receive from our investments without significantly increasing risk. The direct risk to us associated with fluctuating interest rates is limited to our investment portfolio, and we do not believe a change in interest rates will have a significant impact on our financial position, results of operations, or cash flows.

Credit Risk

From time to time, we hold certain financial and derivative instruments that potentially subject us to credit risk. These consist primarily of cash, cash equivalents, restricted cash, investments, and forward foreign currency option contracts. We are exposed to credit losses in the event of nonperformance by the counter parties to our financial and derivative instruments. We place cash, cash equivalents, investments and forward foreign currency option contracts with various high quality financial institutions, and exposure is limited at any one institution. We continuously evaluate the credit standing of our counter party financial institutions.

Item 8. Financial Statements and Supplementary Data

The Financial Statements and Supplementary Data required by this item are included in Part IV, Item 15(a)(1) and are presented beginning on Page F-1.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures designed to ensure that information required to be disclosed in our reports filed or submitted under the Securities Exchange Act of 1934, as amended (the “Exchange Act”) is recorded, processed, summarized and reported within the time periods specified in Securities and Exchange Commission rules and forms. Our disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed in our reports filed under the Exchange Act is accumulated and communicated to management as appropriate to allow timely decisions regarding required disclosures. Our management conducted an evaluation required by Rules 13a-15 and 15d-15 under the Exchange Act of the effectiveness of our disclosure controls and procedures as defined in Rules 13a-15 and 15d-15 under the Exchange Act as of December 31, 2018. Based on this evaluation, our management concluded the design and operation of our disclosure controls and procedures were not effective as of December 31, 2018.

Management’s Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. Our system of internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles ("GAAP") in the United States of America and includes those policies and procedures that:

- pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of our assets;

- provide reasonable assurance transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and our receipts and expenditures are being made only in accordance with authorizations of our management and directors; and

- provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on our financial statements.

Under the supervision of the Audit Committee of the Board of Directors and with the participation of our management, including our Chief Executive Officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting using the criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on this evaluation, our management concluded our internal control over financial reporting were not effective as of December 31, 2018. Our management reviewed the results of its assessment with the Audit Committee.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

A material weakness is a deficiency, or combination of deficiencies, in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of the Company's annual or interim financial statements will not be prevented or detected on a timely basis.

Material Weakness Identified in 2018

Based on our assessment and the criteria used, management concluded that our internal control over financial reporting as of December 31, 2018 was not effective due to the material weaknesses described as follows:

- The Company was understaffed and did not have sufficiently trained resources with the technical expertise to ensure that all company transactions were accounted for in accordance with GAAP. This deficiency arose primarily from staff turnover and the inability of the Company to devote sufficient replacement resources in a timely manner, as a result of the Company's financial situation

As a consequence, the Company did not have effective process level control activities over the following:

- Accounting for the Company's inventory and cost of revenue was lacking for the preparation of the December 31, 2018 financial statements. Miscalculations in these areas could impact the Company's current assets, revenues, operating results, and cash flows.

The control deficiencies described above created a reasonable possibility that a material misstatement to the consolidated financial statements would not be prevented or detected on a timely basis. The control deficiencies described above resulted in material misstatements in the preliminary consolidated financial statements that were corrected prior to the issuance of the consolidated financial statements as of and for the fiscal year ended December 31, 2018. This deficiency did not exist as of and for the year ended December 31, 2017, as such, management concluded the design and operation of our disclosure controls and procedures were effective as of December 31, 2017.

Remediation Plan for Material Weaknesses in Internal Control over Financial Reporting

The Company plans to executed the following steps in 2019 to remediate the aforementioned material weaknesses in its internal control over financial reporting:

- The Company plans to engage a resource, either as internal staff or an external contractor, with the technical expertise to track and report on inventory transactions and cost of revenue calculations.

- The Company will design and implement additional procedures in order to assure that the resource mentioned above and other audit/accounting personnel are more involved with the Company's inventory activities and cost of revenue allocations to monitor and earlier identify accounting issues that may be raised by the Company's ongoing activities.

Changes in Internal Control Over Financial Reporting

Except for the identification and mitigation of the material weaknesses noted above, there were no other changes in internal control over financial reporting during the year ended December 31, 2018 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

Incorporated by reference from the definitive proxy statement for our 2019 annual meeting, which will be filed no later than 120 days after the close of our fiscal year ended December 31, 2018.

Item 11. Executive Compensation

Incorporated by reference from the definitive proxy statement for our 2019 annual meeting, which will be filed no later than 120 days after the close of our fiscal year ended December 31, 2018.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

Incorporated by reference from the definitive proxy statement for our 2019 annual meeting, which will be filed no later than 120 days after the close of our fiscal year ended December 31, 2018.

Securities Authorized for Issuance under Equity Compensation Plans

The following table sets forth information as of December 31, 2018 relating to all of our equity compensation plans:

	Number of securities to be issued upon exercise of outstanding options, warrants and rights	Weighted average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plans
Equity compensation plans approved by security holders	110	$ 132,147.00	107

Item 13. Certain Relationships and Related Transactions, and Director Independence

Incorporated by reference from the definitive proxy statement for our 2019 annual meeting, which will be filed no later than 120 days after the close of our fiscal year ended December 31, 2018.

Item 14. Principal Accounting Fees and Services

Incorporated by reference from the definitive proxy statement for our 2019 annual meeting, which will be filed no later than 120 days after the close of our fiscal year ended December 31, 2018.

PART IV

Item 15. Exhibits and Financial Statement Schedules

(a) The following documents are filed as part of this Annual Report on Form 10-K:

(1) Financial Statements—See Index to Financial Statements at Item 8 of the Annual Report on Form 10-K.

(2) Financial Statement Schedules—Supplemental schedules are not provided because of the absence of conditions under which they are required or because the required information is given in the financial statements or notes thereto.

(3) Exhibits: See Item 15(b) below.

(b) Exhibits: The exhibits listed on the accompanying Index to Exhibits on this Form 10-K are filed or incorporated into this Form 10-K by reference.

INDEX TO EXHIBITS

Set forth below is a list of exhibits that are being filed or incorporated by reference into this Annual Report on Form 10-K:

Exhibit No.	Description
3.1	Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.2 to our Registration Statement on Form SB-2 filed on January 23, 2006 (Reg. No. 333-131216))
3.2	Certificate of Amendment to the Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.1 to our Quarterly Report on Form 10-Q for the quarter ended September 30, 2011)
3.3	Certificate of Amendment to the Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed February 11, 2014)
3.4	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated August 26, 2014. (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed September 2, 2014)
3.5	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated October 27, 2014 (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K dated October 28, 2014)
3.6	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated December 22, 2014. (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K dated December 23, 2014)
3.7	Second Amended and Restated Bylaws (incorporated by reference to Exhibit 3.2 to our Current Report on Form 8-K filed on February 17, 2009)
3.8	First Amendment to Second Amended and Restated Bylaws (incorporated by reference to Exhibit 3.3 to our Quarterly Report on Form 10-Q for the quarter ended September 30, 2009)
3.9	Second Amendment to Second Amended and Restated Bylaws (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed January 25, 2013)
3.10	Third Amendment to Second Amended and Restated Bylaws (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed December 18, 2015)
3.11	Certificate of Designations of Preferences, Rights and Limitations of Series F 7% Preferred Stock (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed January 20, 2016)
3.12	Certificate of Designations of Preferences, Rights and Limitations of Series G 10% Preferred Stock (incorporated by reference to Exhibit 2 to Exhibits 10.5 and 10.6 to our Current Report on Form 8-K filed May 2, 2016).
3.13	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated May 26, 2016 (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed June 2, 2016)

Exhibit No.	Description
3.14	Certificate of Designations of Preferences, Rights and Limitations of Series H 7% Preferred Stock (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed June 9, 2016)
3.15	Certificate of Designations of Preferences, Rights and Limitations of Series I Preferred Stock (incorporated by reference to Exhibit 2 to Exhibit 10.1 to our Current Report on Form 8-K filed July 28, 2016)
3.16	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated September 15, 2016 (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed September 16, 2016)
3.17	Certificate of Designations of Preferences, Rights and Limitations of Series J Preferred Stock (incorporated by reference to Exhibit 2 to Exhibit 10.1 to our Current Report on Form 8-K filed September 23, 2016)
3.18	Certificate of Amendment to Series G Certificate of Designations (incorporated by reference to Exhibit 3.2 to our Current Report on Form 8-K filed September 23, 2016)
3.19	Certificate of Amendment to Series F Certificate of Designations (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed October 11, 2016)
3.20	Certificate of Designations of Preferences, Rights and Limitations of Series J-1 Preferred Stock (incorporated by reference to Exhibit 2 to Exhibit 10.1 to our Current Report on Form 8-K filed October 20, 2016)
3.21	Certificate of Designations of Preferences, Rights and Limitations of Series K Preferred Stock (incorporated by reference to Exhibit 2 to Exhibit 10.1 to our Current Report on Form 8-K filed February 14, 2017)
3.22	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated March 16, 2017 (incorporated by reference to Exhibit 3.2 to our Current Report on Form 8-K filed March 17, 2017)
3.23	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated July 19, 2018 (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed July 23, 2018)
4.1	Form of Common Stock Certificate (incorporated by reference to Exhibit 4.1 to our Registration Statement on Form SB-2 filed on January 23, 2006 (Reg. No. 333-131216))
4.2	Certificate of Designations of Series A Preferred Stock (filed as Exhibit 4.2 to our Registration Statement on Form S-3 filed July 1, 2013 (Reg. No. 333-189739))
4.3	Form of Warrant (filed as Exhibit 4.3 to our Registration Statement on Form S-3 filed July 1, 2013 (Reg. No. 333-189739))
4.4	Certificate of Designations of Series B-1 and B-2 Preferred Stock (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed October 30, 2013)
4.5	Certificate of Designations of Series C Preferred Stock (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed April 2, 2014)

Exhibit No.	Description
4.6	Certificate of Designations of Preferences, Rights and Limitations of Series D Preferred Stock (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed November 17, 2014)
4.7	Certificate of Designations of Preferences, Rights and Limitations of Series D-1 Preferred Stock (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed February 20, 2015)
4.8	Certificate of Designations, Preferences and Rights of the Series E Convertible Preferred Stock (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed on November 10, 2015)
10.1	Securities Purchase Agreement, dated January 17, 2006, between the Company and ITN Energy Systems, Inc. (incorporated by reference to Exhibit 10.1 to our Registration Statement on Form SB-2 filed on January 23, 2006 (Reg. No. 333-131216))CTR
10.2	Invention and Trade Secret Assignment Agreement, dated January 17, 2006, between the Company and ITN Energy Systems, Inc. (incorporated by reference to Exhibit 10.2 to our Registration Statement on Form SB-2 filed on January 23, 2006 (Reg. No. 333-131216))CTR
10.3	Patent Application Assignment Agreement, dated January 17, 2006, between the Company and ITN Energy Systems, Inc. (incorporated by reference to Exhibit 10.3 to our Registration Statement on Form SB-2 filed on January 23, 2006 (Reg. No. 333-131216))
10.4	License Agreement, dated January 17, 2006, between the Company and ITN Energy Systems, Inc. (incorporated by reference to Exhibit 10.4 to our Registration Statement on Form SB-2 filed on January 23, 2006 (Reg. No. 333-131216))CTR
10.5	Letter Agreement, dated November 23, 2005, among the Company, ITN Energy Systems, Inc. and the University of Delaware (incorporated by reference to Exhibit 10.16 to our Registration Statement on Form SB-2/A filed on May 26, 2006 (Reg. No. 333-131216))
10.6	License Agreement, dated November 21, 2006, between the Company and UD Technology Corporation (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on November 29, 2006)CTR
10.7	Novation Agreement, dated January 1, 2007, among the Company, ITN Energy Systems, Inc. and the United States Government (incorporated by reference to Exhibit 10.23 to our Annual Report on Form 10-KSB for the year ended December 31, 2006)
10.8	Construction Loan Agreement, dated February 8, 2008, between the Company and the Colorado Housing and Finance Authority (incorporated by reference to Exhibit 10.37 to our Annual Report on Form 10-K for the year ended December 31, 2007)
10.9	Promissory Note, dated February 8, 2008, issued to the Colorado Housing and Finance Authority (incorporated by reference to Exhibit 10.38 to our Annual Report on Form 10-K for the year ended December 31, 2007)
10.10	Loan Modification Agreement, dated January 29, 2009, between the Company and the Colorado Housing and Finance Authority (incorporated by reference to Exhibit 10.52 to our Annual Report on Form 10-K for the year ended December 31, 2008)
10.11†	Executive Employment Agreement, dated April 4, 2014, between the Company and Victor Lee (filed as Exhibit 10.1 to our Current Report on Form 8-K filed on April 9, 2014) †
10.12	Series E Securities Purchase Agreement, dated November 4, 2015, between the Company and Redwood Management, LLC Ltd (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed November 10, 2015)

Exhibit No.	Description
10.13	Series E Registration Rights Agreement, dated November 4, 2015, between the Company and Redwood Management, LLC (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed November 10, 2015)
10.14	Equity Line Purchase Agreement dated November 10, 2015 (incorporated by reference to Exhibit 10.3 to our Current Report on Form 8-K filed November 10, 2015)
10.15	Equity Line Registration Rights Agreement dated November 10, 2015 (incorporated by reference to Exhibit 10.4 to our Current Report on Form 8-K filed November 10, 2015)
10.16	Series F Securities Purchase Agreement, dated January 19, 2016, between the Company and Redwood Management, LLC Ltd (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed January 20, 2016)
10.17	Right to Receive Common Stock dated April 29, 2016 (incorporated by reference to Exhibit 10.3 to our Current Report on Form 8-K filed May 2, 2016)
10.18	Right to Receive Common Stock dated April 29, 2016 (incorporated by reference to Exhibit 10.4 to our Current Report on Form 8-K filed May 2, 2016)
10.19	Series G Securities Purchase Agreement dated April 29, 2016 (incorporated by reference to Exhibit 10.5 to our Current Report on Form 8-K filed May 2, 2016
10.20	Series G Securities Purchase Agreement dated April 29, 2016 (incorporated by reference to Exhibit 10.6 to our Current Report on Form 8-K filed May 2, 2016
10.21	Series H Securities Purchase Agreement dated June 9, 2016 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed June 9, 2016)
10.22	Series H Registration Rights Agreement dated June 9, 2016 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed June 9, 2016)
10.23†	Seventh Amended and Restated 2005 Stock Option Plan (incorporated by reference to Annex C of our definitive proxy statement dated April 22, 2016)†
10.24†	Seventh Amended and Restated 2008 Restricted Stock Plan Stock Option Plan Plan (incorporated by reference to Annex B of our definitive proxy statement dated April 22, 2016)†
10.25	Series I Securities Purchase Agreement dated July 26, 2016 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed July 28, 2016)
10.26	Form of 10% Convertible Note (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed September 14, 2016)
10.27	Exchange Agreement dated September 13, 2016 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed September 14, 2016)

Table of Contents

Exhibit No.	Description
10.28	Series J Securities Purchase Agreement dated September 19, 2016 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed September 23, 2016)
10.29	Securities Purchase Agreement for Notes dated October 5, 2016 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed October 11, 2016)
10.30	Note due December 5, 2016 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed October 11, 2016)
10.31	Note due January 3, 2017 (incorporated by reference to Exhibit 10.3 to our Current Report on Form 8-K filed October 11, 2016)
10.32	Note due February 3, 2017 (incorporated by reference to Exhibit 10.4 to our Current Report on Form 8-K filed October 11, 2016)
10.33	Exchange Agreement dated October 5, 2016 (incorporated by reference to Exhibit 10.5 to our Current Report on Form 8-K filed October 11, 2016)
10.34	Series J-1 Securities Purchase Agreement dated October 14, 2016 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed October 20, 2016)
10.35	Note dated December 2, 2016 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed December 8, 2016)
10.36	Note dated December 6, 2016 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed December 8, 2016)
10.37	Note dated December 13, 2016 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed December 19, 2016)
10.38	Note dated December 30, 2016 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed January 6, 2017)
10.39	Note dated January 10, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed January 17, 2017)
10.40	$300,000 Note dated January 16, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed January 20, 2017)
10.41	$700,000 Note dated January 17, 2017 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed January 20, 2017)
10.42	Securities Purchase Agreement dated January 19, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed January 24, 2017)

Exhibit No.	Description
10.43	Note dated February 7, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed February 9, 2017)
10.44	Series K Securities Purchase Agreement dated February 8, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed February 14, 2017)
10.45	Note dated February 13, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed February 17, 2017)
10.46	$400,000 Note dated February 27, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed March1, 2017)
10.47	Intellectual Property Disposal Agreement dated as of January 25, 2017 and effective February 23, 2017 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed March 1, 2017)
10.48	Note dated March 13, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed March 17, 2017)
10.49	Note dated March 24, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed March 29, 2017)
10.50	Note dated April 6, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed April 7, 2017)
10.51	Note dated April 21 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed April 24, 2017)
10.52	Forbearance and Settlement Agreement dated May 5, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed May 10, 2017)
10.53	Note dated May 8, 2017 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed May 10, 2017)
10.54	Form of Warrant (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed July 27, 2017)
10.55	Form of Warrant (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed August 11, 2017)
10.56	Securities Purchase Agreement dated September 8, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed September 14, 2017)
10.57	Note dated September 11, 2017 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed September 14, 2017)

Exhibit No.	Description
10.58	Promissory Note Exchange Agreement dated September 13, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed September 20, 2017)
10.59	Note dated September 13, 2017 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed September 20, 2017)
10.60	Note dated October 31, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed November 8, 2017)
10.61	Note dated November 16, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed November 22, 2017)
10.62	Note Purchase and Exchange Agreement dated November 30, 2017 (incorporated by reference to Exhibit 10.62 to our Annual Report on Form 10-K filed March 29, 2018)
10.63	Form of Secured Convertible Promissory Note - 36 month maturity (incorporated by reference to Exhibit 10.63 to our Annual Report on Form 10-K filed March 29, 2018)
10.64	Form of Secured Convertible Promissory Note - 12 month maturity (incorporated by reference to Exhibit 10.64 to our Annual Report on Form 10-K filed March 29, 2018)
10.65	Security Agreement dated November 30, 2017 (incorporated by reference to Exhibit 10.65 to our Annual Report on Form 10-K filed March 29, 2018)
10.66	Series J Securities Exchange Agreement dated December 6, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed December 12, 2017)
10.67	Note dated December 6, 2017 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed December 12, 2017)
10.68	Warrant dated December 15, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed December 20, 2017)
10.69	Unsecured Promissory Note dated January 31, 2018 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed February 2, 2018)
10.70	Unsecured Promissory Note dated January 31, 2018 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed February 2, 2018)
10.71	Amendment of Outstanding Convertible Notes dated May 1, 2018 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed May 7, 2018)
10.72	Securities Purchase Agreement dated May 8, 2018 (incorporated by reference to Exhibit 10.1 to our Quarterly Report on Form 10-Q filed August 20, 2018)

Exhibit No.	Description
10.73	Secured Convertible Note dated May 8, 2018 (incorporated by reference to Exhibit 10.2 to our Quarterly Report on Form 10-Q filed August 20, 2018)
10.74	Unsecured Promissory Note dated June 6, 2018 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed June 12, 2018)
10.75	Secured Promissory Note dated July 6, 2018 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed July 12, 2018)
10.76	Unsecured Promissory Note dated July 24, 2018 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed July 30, 2018)
10.77	Exchange Agreement dated July 25, 2018 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on July 30, 2018)
10.78	Unsecured Convertible Exchange Note dated July 25, 2018 (incorporated by reference to Exhibit 10.3 to our Current Report on Form 8-K filed on July 30, 2018)
10.79	Securities Purchase Agreement dated August 1, 2018 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on August 8, 2018)
10.80	Convertible Promissory Note dated August 1, 2018 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on August 8, 2018)
10.81	Securities Purchase Agreement dated August 29, 2018 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on September 10, 2018)
10.82	Convertible Promissory Note dated August 29, 2018 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on September 10, 2018)
10.83	Securities Purchase Agreement dated September 4, 2018 (incorporated by reference to Exhibit 10.3 to our Current Report on Form 8-K filed on September 10, 2018)
10.84	Convertible Promissory Note dated September 4, 2018 (incorporated by reference to Exhibit 10.4 to our Current Report on Form 8-K filed on September 10, 2018)
10.85	Exchange Agreement dated September 7, 2018 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on September 13, 2018)
10.86	Convertible Promissory Note dated September 7, 2018 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on September 13, 2018)
10.87	Non-Convertible Promissory Note dated September 10, 2018 (incorporated by reference to Exhibit 10.3 to our Current Report on Form 8-K filed on September 13, 2018)

Exhibit No.	Description
10.88	Convertible Promissory Note dated September 14, 2018 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on September 20, 2018)
10.89	Secured Convertible Promissory Note dated October 2, 2018 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on October 9, 2018)
10.90	Securities Purchase Agreement dated October 16, 2018 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on October 23, 2018)
10.91	Convertible Promissory Note dated October 16, 2018 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on October 23, 2018)
10.92	Secured Promissory Note dated October 22, 2018 (incorporated by reference to Exhibit 10.3 to our Current Report on Form 8-K filed on October 23, 2018)
10.93	Securities Purchase Agreement dated November 5, 2018 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on November 14, 2018)
10.94	Convertible Promissory Note dated November 5, 2018 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on November 14, 2018)
10.95	Investor Notes (Numbered 1 through 8) each dated November 5, 2018 (incorporated by reference to Exhibit 10.3 to our Current Report on Form 8-K filed on November 14, 2018)
10.96	Non-Convertible Promissory Note Dated December 31, 2018 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on January 3, 2019)
10.97	Unsecured Promissory Note dated January 11, 2019 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on January 15, 2019)
10.98*	Securities Purchase Agreement Dated February 14, 2019*
10.99*	Convertible Promissory Note Dated February 14, 2019*
10.100	GS Capital Partners Convertible Redeemable Note (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on February 28, 2019)
10.101	GS Capital Partners Securities Purchase Agreement (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on February 28, 2019)
10.102	Securities Purchase Agreement Dated March 7, 2019 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on March 13, 2019)

Exhibit No.	Description
10.103	Convertible Promissory Note Dated March 7, 2019 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on March 13, 2019)
10.104	Exchange Agreement I Dated March 11, 2019 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on March 15, 2019)
10.105	Convertible Promissory Note Dated March 11, 2019 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on March 15, 2019)
10.106	Exchange Agreement II Dated March 11, 2019 (incorporated by reference to Exhibit 10.3 to our Current Report on Form 8-K filed on March 15, 2019)
10.107	Convertible Promissory Note Dated March 11, 2019 (incorporated by reference to Exhibit 10.4 to our Current Report on Form 8-K filed on March 15, 2019)
10.108	Non-Convertible Promissory Note Dated March 11, 2019 (incorporated by reference to Exhibit 10.5 to our Current Report on Form 8-K filed on March 15, 2019)
10.109	Securities Purchase Agreement Dated March 13, 2019 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on March 22, 2019)
10.110	Secured Convertible Promissory Note Dated March 13, 2019 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on March 22, 2019)
23.1	Consent of Haynie & Company*
31.1	Chief Executive Officer Certification pursuant to section 302 of the Sarbanes-Oxley Act of 2002*
31.2	Chief Financial Officer Certification pursuant to section 302 of the Sarbanes-Oxley Act of 2002*
32.1	Chief Executive Officer Certification pursuant to section 906 of the Sarbanes-Oxley Act of 2002*
32.2	Chief Financial Officer Certification pursuant to section 906 of the Sarbanes-Oxley Act of 2002*
101.INS	XBRL Instance Document*
101.SCH	XBRL Taxonomy Extension Schema Document*

Exhibit No.	Description
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document*
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document*
101.LAB	XBRL Taxonomy Extension Label Linkbase Document*
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document*

*	Filed herewith
CTR	Portions of this exhibit have been omitted pursuant to a request for confidential treatment.
†	Denotes management contract or compensatory plan or arrangement.

Item 16. Form 10-K Summary

None.

ASCENT SOLAR TECHNOLOGIES, INC.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized on the 16th day of April, 2019.

ASCENT SOLAR TECHNOLOGIES, INC.

By: /S/ VICTOR LEE

Lee Kong Hian (aka Victor Lee)
President and Chief Executive Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant in the capacities and on the dates indicated.

Signature	Capacities	Date
/S/ VICTOR LEE Lee Kong Hian (aka Victor Lee)	President & Chief Executive Officer and a Director (principal executive officer, and principal financial officer and accounting officer)	April 16, 2019
/S/ AMIT KUMAR Amit Kumar, Ph.D.	Chairman of the Board of Directors	April 16, 2019
/S/ G. THOMAS MARSH G. Thomas Marsh	Director	April 16, 2019
/S/ KIM J. HUNTLEY Kim J. Huntley	Director	April 16, 2019

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Ascent Solar Technologies, Inc.

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and
Stockholders of Ascent Solar Technologies, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Ascent Solar Technologies, Inc. (the Company) as of December 31, 2018 and 2017,and the related consolidated statements of operations, stockholders' deficit, and cash flows for each of the years in the two year period ended December 31, 2018, and the related notes (collectively referred to as the financial statements). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2018 and 2017 and , and the results of its operations and its cash flows for the years ended December 31, 2018 and 2017, in conformity with accounting principles generally accepted in the United States of America.

Consideration of the Company's Ability to Continue as a Going Concern

The accompanying financial statements have been prepared assuming that the Company will continue as a going concern. As more fully described in Note 4 to the financial statements, the Company has recurring losses, negative working capital and negative cash flows from operations. These factors raise substantial doubt about the Company's ability to continue as a going concern. Management's plans in regard to these matters are also described in Note 4 to the financial statements. The financial statements do not include any adjustments that might result from the outcome of this uncertainty. If the Company is unable to obtain financing or increase sales, there could be a material adverse effect on the Company.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits, we are required to obtain an understanding of internal control over financial reporting, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Haynie and Company

We have served as the Company's auditor since 2017
Littleton, Colorado
April 16, 2019

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ASCENT SOLAR TECHNOLOGIES, INC.

CONSOLIDATED BALANCE SHEETS

	December 31, 2018	December 31, 2017
ASSETS (substantially pledged)		
Current Assets:		
Cash and cash equivalents	$ 18,159	$ 89,618
Trade receivables, net of allowance of $45,664 and $48,201, respectively	165,160	6,658
Inventories, net	660,791	1,037,854
Prepaid expenses and other current assets	138,369	494,425
Total current assets	982,479	1,628,555
Property, Plant and Equipment:	36,621,187	36,645,862
Less accumulated depreciation and amortization	(32,207,829)	(32,013,686)
	4,413,358	4,632,176
Other Assets:		
Patents, net of accumulated amortization of $363,533 and $430,071, respectively	862,429	1,470,796
Other non-current assets	34,061	49,813
	896,490	1,520,609
Total Assets	$ 6,292,327	$ 7,781,340
LIABILITIES AND STOCKHOLDERS' DEFICIT		
Current Liabilities:		
Accounts payable	$ 2,318,655	$ 1,600,455
Related party payables	270,740	202,827
Accrued expenses	1,562,435	1,180,161
Accrued interest	1,198,279	443,587
Notes payable	1,516,530	1,570,231
Current portion of long-term debt	349,093	343,395
Secured promissory notes, net of discount of $2,824,365 and $3,618,571, respectively	3,447,380	938,656
Promissory notes, net of discount of $104,583 and $20,626, respectively	1,239,854	948,811
Convertible notes, net of discount of $394,011 and $1,238,241, respectively	1,852,722	1,362,592
Embedded derivative liability	10,114,452	6,406,833
Total current liabilities	23,870,140	14,997,548
Long-term debt, net of current portion	5,028,969	5,118,424
Accrued Warranty Liability	29,114	57,703
Total Liabilities	28,928,223	20,173,675
Redeemable Preferred Stock:		
Series K preferred stock: 20,000 shares authorized as of December 31, 2018 and December 31, 2017; zero and 2,810 issued and outstanding as of December 31, 2018 and December 31, 2017, respectively	—	2,810,000
Commitments and Contingencies	—	—
Stockholders' Deficit:		
Series A preferred stock, $.0001 par value; 750,000 shares authorized; 60,756 shares issued and outstanding as of December 31, 2018 and December 31, 2017 ($822,620 and $761,864 Liquidation Preference, respectively)	6	6
Common stock, $0.0001 par value, 20,000,000,000 shares authorized as of December 31, 2018 and December 31, 2017; 63,537,885 and 9,606,677 shares	6,354	960,660

issued and outstanding as of December 31, 2018 and December 31, 2017, respectively		
Additional paid in capital	395,889,712	386,332,475
Accumulated deficit	(418,531,968)	(402,495,476)
Total stockholders' deficit	(22,635,896)	(15,202,335)
Total Liabilities and Stockholders' Deficit	$ 6,292,327	$ 7,781,340

The accompanying notes are an integral part of these consolidated financial statements.

ASCENT SOLAR TECHNOLOGIES, INC.

CONSOLIDATED STATEMENTS OF OPERATIONS

	For the Years Ended December 31, 2018	2017
Revenues	$ 862,412	$ 642,179
Costs and Expenses		
Cost of revenues (exclusive of depreciation shown below)	1,015,796	2,814,782
Research, development and manufacturing operations (exclusive of depreciation shown below)	2,794,641	4,820,536
Selling, general and administrative (exclusive of depreciation shown below)	3,244,793	5,598,004
Depreciation and amortization	377,306	1,193,535
Inventory impairment loss	—	363,377
Total Costs and Expenses	7,432,536	14,790,234
Loss from Operations	(6,570,124)	(14,148,055)
Other Income/(Expense)		
Other Income/(Expense), net	13,144	574,817
Interest Expense	(7,351,681)	(6,518,747)
Deemed interest expense on warrant liability	—	(345,774)
Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net	(2,127,831)	1,877,629
Total Other Income/(Expense)	(9,466,368)	(4,412,075)
Net Loss	$ (16,036,492)	$ (18,560,130)
Net Loss Per Share (Basic and diluted)	$ (0.69)	$ (3.15)
Weighted Average Common Shares Outstanding (Basic and diluted)	23,157,607	5,883,375

The accompanying notes are an integral part of these consolidated financial statements.

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ASCENT SOLAR TECHNOLOGIES, INC.

CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY (DEFICIT)

	Common Stock		Series A Preferred Stock		Additional Paid-In Capital	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount	Shares	Amount			
Balance, December 31, 2016	554,302	$ 55	125,044	$ 13	$ 369,941,432	$ (383,932,576)	(13,991,076)
Interest and Dividend Expense paid with Common Stock	332,007	33			246,551		246,584
Issuance of Restricted Stock	40	—			—		—
Commitment Shares	37,500	4			63,746		63,750
Conversion of Series A Preferred Stock into Common Shares, plus make-whole	131,089	13	(64,288)	(7)	257,146		257,152
Conversion of Series E Preferred Stock into Common Shares	247,372	25			119,975		120,000
Conversion of Series F Preferred Stock into Common Shares	189,780	19			126,981		127,000
Conversion of Series G Preferred Stock into Common Shares	1,529,316	153			897,847		898,000
Conversion of Series I Convertible Notes into Common Shares	419,720	42			226,029		226,071
Conversion of Series J Preferred Stock into Common Shares	365,646	37			274,963		275,000
Conversion of Series J-1 Preferred Stock into Common Shares	466,667	47			699,953		700,000
Conversion of Series K Preferred Stock into Common Shares	1,550,000	155			6,199,845		6,200,000
Conversion of July 2016 Convertible Notes into Common Shares	2,808,249	281			1,699,686		1,699,967
Conversion of TFG note into Common Shares	333,333	33			544,648		544,681
Conversion of BayBridge Note into Common Shares	473,405	47			377,952		377,999
Conversion of Global Ichiban Note into Common Shares	168,251	17			163,491		163,508
Loss on Extinguishment of Liabilities					4,481,939		4,481,939
Induced Conversion Costs					500,948		500,948
Warrant Expense					345,774		345,774
Stock based compensation					123,268		123,268
Prior period adjustment - subsidiary						(2,770)	(2,770)
Net Loss						(18,560,130)	(18,560,130)
Balance, December 31, 2017	9,606,677	$ 961	60,756	$ 6	$ 387,292,174	$ (402,495,476)	$ (15,202,335)
Interest and Dividend Expense paid with Common Stock	1,137,349	114			62,800		62,914
Conversion of St.George Note into Common Shares	15,849,656	1,585			605,015		606,600
Conversion of Global Ichiban Note into Common Shares	3,486,274	349			1,425,651		1,426,000
Conversion of BayBridge Note into Common Shares	19,838,979	1,984			770,517		772,501
Conversion of Bellridge Note into Common Shares	10,912,281	1,091			243,909		245,000
	2,004,169	200			356,542		356,742

Conversion of Note Payable into Common Shares							
Conversion of Series K Preferred Stock into Common Shares	702,500	70			2,809,930		2,810,000
Loss on Extinguishment of Liabilities					2,293,909		2,293,909
Stock based compensation					29,265		29,265
Net Loss						(16,036,492)	(16,036,492)
Balance, December 31, 2018	63,537,885	$ 6,354	60,756	$ 6	$ 395,889,712	$ (418,531,968)	$ (22,635,896)

The accompanying notes are an integral part of these consolidated financial statements.

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ASCENT SOLAR TECHNOLOGIES, INC.

CONSOLIDATED STATEMENTS OF CASH FLOWS

	For the Years Ended December 31,	
	2018	2017
Operating Activities:		
Net loss	$ (16,036,492)	$ (18,560,130)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	381,056	1,197,285
Stock based compensation	29,265	123,268
Realized loss (gain) on sale of assets	(14,000)	(1,210,331)
Amortization of financing costs	29,167	76,351
Non-cash interest expense	704,968	643,263
Amortization of debt discount	5,198,003	4,427,086
Bad debt expense	(2,536)	514
Accrued litigation settlement	—	(339,481)
Warrant expense	—	345,774
Impairment of inventory	—	363,377
Write off Enerplex Patents	467,005	—
Warranty reserve	(28,589)	(118,754)
Change in fair value of derivatives and loss on extinguishment of liabilities, net	2,127,831	(1,877,629)
Induced conversion expense	—	635,514
Changes in operating assets and liabilities:		
Accounts receivable	(155,966)	569,632
Inventories	377,063	1,168,585
Prepaid expenses and other current assets	383,475	389,910
Accounts payable	994,418	(592,403)
Related party payable	67,913	(12,076)
Accrued expenses	1,083,727	11,502
Accrued interest	377,846	160,814
Net cash used in operating activities	(4,015,846)	(12,597,929)
Investing Activities:		
Purchase of property, plant and equipment	—	(6,402)
Proceeds from sale of assets	14,000	150,000
Patent activity costs	(16,447)	(62,652)
Net cash provided by (used in) investing activities	(2,447)	80,946
Financing Activities:		
Proceeds from debt	4,103,500	5,542,500
Repayment of debt	(145,666)	(2,056,845)
Payment of debt financing costs	(11,000)	(20,000)
Proceeds from issuance of stock and warrants	—	9,010,000
Net cash provided by financing activities	3,946,834	12,475,655
Net change in cash and cash equivalents	(71,459)	(41,328)
Cash and cash equivalents at beginning of period	89,618	130,946
Cash and cash equivalents at end of period	$ 18,159	$ 89,618

Supplemental Cash Flow Information:		
Cash paid for interest	$ 237,681	$ 1,221,843

Cash paid for income taxes	$ —	$ —
Non-Cash Transactions:		
Non-cash conversions of preferred stock and convertible notes to equity	$ 6,216,842	$ 11,835,962
Non-cash conversions of preferred stock to notes payable	$ —	$ 1,075,000
Make-whole provision on convertible preferred stock	$ —	$ 257,152
Non-cash financing costs	$ 45,000	$ 2,500
Debt converted to accounts payable	$ —	$ 55,067
Accounts payable converted to notes payable	$ 308,041	$ 1,587,760
Accounts payable forgiven related to sale of EnerPlex	$ —	$ 1,031,726
Interest converted to principal	$ 140,518	$ 431,195
Common shares issued for commitment fee	$ —	$ 63,750
Initial embedded derivative liabilities	$ 3,873,697	$ 5,878,345
Promissory notes converted to convertible notes	$ 475,000	$ —

The accompanying notes are an integral part of these consolidated financial statements.

ASCENT SOLAR TECHNOLOGIES, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

NOTE 1. ORGANIZATION

Ascent Solar Technologies, Inc. (“Ascent”) was incorporated on October 18, 2005 from the separation by ITN Energy Systems, Inc. (“ITN”) of its Advanced Photovoltaic Division and all of that division’s key personnel and core technologies. ITN, a private company incorporated in 1994, is an incubator dedicated to the development of thin film, photovoltaic (“PV”), battery, fuel cell and nano technologies. Through its work on research and development contracts for private and governmental entities, ITN developed proprietary processing and manufacturing know how applicable to PV products generally, and to Copper-Indium-Gallium-diSelenide (“CIGS”) PV products in particular. ITN formed Ascent to commercialize its investment in CIGS PV technologies. In January 2006, in exchange for 102,800 shares of common stock of Ascent, ITN assigned to Ascent certain CIGS PV technologies and trade secrets and granted to Ascent a perpetual, exclusive, royalty free worldwide license to use, in connection with the manufacture, development, marketing and commercialization of CIGS PV to produce solar power, certain of ITN’s existing and future proprietary and control technologies that, although non-specific to CIGS PV, Ascent believes will be useful in its production of PV modules for its target markets. Upon receipt of the necessary government approvals and pursuant to novation in early 2007, ITN assigned government funded research and development contracts to Ascent and also transferred the key personnel working on the contracts to Ascent.

Currently, the Company is focusing on integrating its PV products into high value markets such as aerospace, satellites, near earth orbiting vehicles, and fixed-wing unmanned aerial vehicles (UAV). The value proposition of Ascent’s proprietary solar technology not only aligns with the needs of customers in these industries, but also overcomes many of the obstacles other solar technologies face in these unique markets. Ascent has the capability to design and develop finished products for end users in these areas as well as collaborate with strategic partners to design and develop custom integrated solutions for products like fixed-wing UAVs. Ascent sees significant overlap of the needs of end users across some of these industries and can achieve economies of scale in sourcing, development, and production in commercializing products for these customers.

Reverse Stock Split

On July 19, 2018, the Company, filed a Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company (the “Certificate of Amendment”) with the Secretary of State of the State of Delaware to effect a reverse stock split of the Company’s common stock, at a ratio of one-for-one thousand (the “Reverse Stock Split”).

The Certificate of Amendment provides that the Reverse Stock Split became effective as of 5:00 p.m. Eastern Time on July 20, 2018 (the “Effective Time”), at which time every thousand shares of the Company’s issued and outstanding Common Stock were automatically combined into one issued and outstanding share of Common Stock, without any change in the par value per share. The Certificate of Amendment provides that in the event a stockholder would otherwise be entitled to receive a fraction of a share of Common Stock, such stockholder shall receive one whole share of Common Stock in lieu of such fractional share and no fractional shares shall be issued.

NOTE 2. BASIS OF PRESENTATION

The accompanying consolidated financial statements have been derived from the accounting records of Ascent Solar Technologies, Inc., Ascent Solar (Asia) Pte. Ltd., and Ascent Solar (Shenzhen) Co., Ltd. (collectively, "the Company") as of December 31, 2018 and December 31, 2017, and the results of operations for the years ended December 31, 2018 and 2017. Ascent Solar (Shenzhen) Co., Ltd. is wholly owned by Ascent Solar (Asia) Pte. Ltd., which is wholly owned by Ascent Solar Technologies, Inc. All significant inter-company balances and transactions have been eliminated in the accompanying consolidated financial statements.

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

NOTE 3. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Cash Equivalents: The Company classifies all short-term investments in interest bearing bank accounts and highly liquid debt securities purchased with an original maturity of three months or less to be cash equivalents. The Company maintains cash balances which may exceed federally insured limits. The Company does not believe this results in significant credit risk.

Foreign Currencies: Bank account balances held in foreign currencies are translated to U.S. dollars utilizing the period end exchange rate. Gains or losses incurred in connection with the Company's accounts held in foreign currency were not material for the years ended December 31, 2018 and 2017 and were recorded in "Other Income/(Expense)" in the Consolidated Statements of Operations.

Receivables and Allowance for Doubtful Accounts: Trade accounts receivable are recorded at the invoiced amount as the result of transactions with customers. The Company maintains allowances for doubtful accounts for estimated losses resulting from the inability of its customers to make required payments. The Company estimates the collectability of accounts receivable using analysis of historical bad debts, customer credit-worthiness and current economic trends. Reserves are established on an account-by-account basis. Account balances are written off against the allowance in the period in which the Company determines that is it probable that the receivable will not be recovered. As of December 31, 2018 and 2017, the Company had an allowance for doubtful accounts of $45,664 and $48,201, respectively.

Inventories: All inventories are stated at the lower of cost or net realizable value, with cost determined using the weighted average method. Inventory balances are frequently evaluated to ensure they do not exceed net realizable value. The computation for net realizable value takes into account many factors, including expected demand, product life cycle and development plans, module efficiency, quality issues, obsolescence and others. Management's judgment is required to determine reserves for obsolete or excess inventory. As of December 31, 2018 and 2017, the Company had inventory reserve balances of $745,927 and $562,140, respectively. In response to management's estimate of current market conditions, the Company has reserved all of its work-in-process and finished goods inventory as of December 31, 2018. If actual demand and market conditions are less favorable than those estimated by management, additional inventory write downs may be required.

Due to the sale of the EnerPlex brand and the re-purposing of our work-in-process inventory, we are unable to estimate the recoverability of all of our work-in process inventory values, resulting in a lower-cost-to-market analysis and reserve for impairment. An expense of $363,377 was recorded to inventory impairment costs for the year ended December 31, 2017. There were no lower of cost or market adjustments during the year ended December 31, 2018.

Property, Plant and Equipment: Property, plant and equipment are recorded at the original cost to the Company. Assets are being depreciated over estimated useful lives of three to forty years using the straight-line method, as presented in the table below, commencing when the asset is placed in service. Leasehold improvements are depreciated over the shorter of the remainder of the lease term or the life of the improvements. Upon retirement or disposal, the cost of the asset disposed of and the related accumulated depreciation are removed from the accounts and any gain or loss is reflected in income. Expenditures for repairs and maintenance are expensed as incurred.

	Useful Lives in Years
Buildings	40
Manufacturing machinery and equipment	5 - 10
Furniture, fixtures, computer hardware/software	3 - 7
Leasehold improvements	life of lease

Patents: At such time as the Company is awarded patents, patent costs are amortized on a straight-line basis over the legal life on the patents, or over their estimated useful lives, whichever is shorter. During the year ended December 31, 2018, the Company wrote down the remaining international EnerPlex IP, which was not part of the 2017 sale of the EnerPlex IP. This write down consisted of $692,032 in capitalized patent costs, reduced by $225,027 in accumulated amortization, resulting in an expense of $467,005. As of December 31, 2018 and 2017, the Company had $862,429 and $1,470,796 of net patent costs, respectively. Of these amounts $207,308 and $640,167 represents costs net of amortization incurred for awarded patents, and the remaining $655,121 and $830,629 represents costs incurred for patent applications to be filed as of December 31, 2018 and 2017, respectively. During the years ended December 31, 2018 and 2017, the Company capitalized $16,447 and $62,652 in patent costs, respectively, as it worked to secure design rights and trademarks for newly developed products. Amortization expense was $158,488 and $150,928 for the years ended December 31, 2018 and 2017, respectively.

As of December 31, 2018, future amortization of patents is expected as follows:

2019	$	57,649
2020	$	45,920
2021	$	37,429
2022	$	33,924
2023	$	25,154
Thereafter	$	7,232
	$	207,308

Impairment of Long-lived Assets: The Company analyzes its long-lived assets (property, plant and equipment) and definitive-lived intangible assets (patents) for impairment, both individually and as a group, whenever events or changes in circumstances indicate the carrying amount of the assets may not be recoverable. Events that might cause impairment would include significant current period operating or cash flow losses associated with the use of a long-lived asset or group of assets combined with a history of such losses, significant changes in the manner of use of assets and significant negative industry or economic trends. An undiscounted cash flow analysis is calculated to determine if impairment exists. If impairment is determined to exist, any related loss is calculated using the difference between the fair value and the carrying value of the assets. During the years ended December 31, 2018 and 2017, the Company did not incur impairments of its manufacturing facilities and equipment.

Interest Capitalization: Historically the Company has capitalized interest cost as part of the cost of acquiring or constructing certain assets during the period of time required to get the asset ready for its intended use. The Company capitalized interest to the extent that expenditures to acquire or construct an asset have occurred and interest cost has been incurred.

Convertible Notes: The Company issues, from time to time, convertible notes. Refer to Notes 10 and 12 for further information.

Convertible Preferred Stock: The Company evaluates its preferred stock instruments under FASB ASC 480, *"Distinguishing Liabilities from Equity"* to determine the classification, and thereby the accounting treatment, of the instruments. Refer to Notes 13 and 14 for further discussion on the classification of each instrument.

Derivatives: The Company evaluates its financial instruments under FASB ASC 815, *"Derivatives and Hedging"* to determine whether the instruments contain an embedded derivative. When an embedded derivative is present, the instrument is evaluated for a fair value adjustment upon issuance and at the end of every reporting period. Any adjustments to fair value are treated as gains and losses in fair values of derivatives and are recorded in the Consolidated Statements of Operations.

The following table is a summary of the derivative liability activity for the years ended December 31, 2018:

Derivative Liability Balance as of December 31, 2017	**$**	**6,406,833**
Additional derivative liability on new notes		3,873,697
Derivative liability extinguished		(27,686)
Change in fair value of derivative liability		(138,392)
Derivative Liability Balance as of December 31, 2018	**$**	**10,114,452**

Refer to Notes 10 and 12 for further discussion on the embedded derivatives of each instrument.

Product Warranties: The Company provides a limited warranty to the original purchaser of products against defective materials and workmanship. The Company also guarantees that standalone modules and PV integrated consumer electronics will achieve and maintain the stated conversion efficiency rating for certain products. Warranty accruals are recorded at the time of sale and are estimated based upon product warranty terms, historical experience and analysis of peer company product returns. The Company assesses the adequacy of its liabilities and makes adjustments as necessary based on known or anticipated warranty claims, or as new information becomes available.

Warrant Liability: Warrants to purchase the Company's common stock with nonstandard anti-dilution provisions, regardless of the probability or likelihood that may conditionally obligate the issuer to ultimately transfer assets, are classified as liabilities and are recorded at their estimated fair value at each reporting period. Any change in fair value of these warrants is recorded at each reporting period in Other income/(expense) on the Company's statement of operations.

Revenue Recognition:

Product revenue. We recognize revenue for module and other equipment sales at a point in time following the transfer of control of such products to the customer, which typically occurs upon shipment or delivery depending on the terms of the underlying contracts. For module and other equipment sales contracts that contain multiple performance obligations, we allocate the transaction price to each performance obligation identified in the contract based on relative standalone selling prices, or estimates of such prices, and recognize the related revenue as control of each individual product is transferred to the customer, in satisfaction of the corresponding performance obligations.

During the years ended December 31, 2018 and 2017, the company recognized product revenue of $813,512 and $642,179, respectively.

Government contracts revenue. Revenue from government research and development contracts is generated under terms that are cost plus fee or firm fixed price. We generally recognize this revenue over time using cost based input methods, which recognize revenue and gross profit as work is performed based on the relationship between actual costs incurred compared to the total estimated costs of the contract. In applying cost based input methods of revenue recognition, we use the actual costs incurred relative to the total estimated costs to determine our progress towards contract completion and to calculate the corresponding amount of revenue to recognize.

Cost based input methods of revenue recognition are considered a faithful depiction of our efforts to satisfy long-term government research and development contracts and therefore reflect the performance obligations under such contracts. Costs incurred that do not contribute to satisfying our performance obligations are excluded from our input methods of revenue recognition as the amounts are not reflective of our transferring control under the contract. Costs incurred towards contract completion may include direct costs plus allowable indirect costs and an allocable portion of the fixed fee. If actual and estimated costs to complete a contract indicate a loss, provision is made currently for the loss anticipated on the contract.

During the year ended December 31, 2018, the company recognized government contract revenue of $48,900. No government contract revenue was recognized for the year ended December 31, 2017.

Shipping and Handling Costs: The Company classifies shipping and handling costs for products shipped to customers as a component of “Cost of revenues” on the Company’s Consolidated Statements of Operations. Customer payments of shipping and handling costs are recorded as a component of Revenues.

Research, Development and Manufacturing Operations Costs: Research, development and manufacturing operations expenses were $2,794,641 and $4,820,536 for the years ended December 31, 2018 and 2017, respectively. Research, development and manufacturing operations expenses include: 1) technology development costs, which include expenses incurred in researching new technology, improving existing technology and performing federal government research and development contracts, 2) product development costs, which include expenses incurred in developing new products and lowering product design costs, and 3) pre-production and production costs, which include engineering efforts to improve production processes, material yields and equipment utilization, and manufacturing efforts to produce saleable product. Research, development and manufacturing operations costs are expensed as incurred, with the exception of costs related to inventoried raw materials, work-in-process and finished goods, which are expensed as Cost of revenue as products are sold.

Marketing and Advertising Costs: The Company advertises in print, television, online and through social media. The Company will also authorize customers to run advertising campaigns on its behalf through various media outlets. Marketing and advertising costs are expensed as incurred. Marketing and advertising expenses were $23,560 and $189,382 for the years ended December 31, 2018 and 2017, respectively.

Share-Based Compensation: The Company measures and recognizes compensation expense for all share-based payment awards made to employees, officers, directors, and consultants based on estimated fair values. The value of the portion of the award that is ultimately expected to vest is recognized as expense over the requisite service period in the Company's Statements of Operations. Share-based compensation is based on awards ultimately expected to vest and is reduced for estimated forfeitures. Forfeitures are estimated at the time of grant and revised, as necessary, in subsequent periods if actual forfeitures differ from those estimates. For purposes of determining estimated fair value of share-based payment awards on the date of grant the Company uses the Black-Scholes option-pricing model ("Black-Scholes Model") for option awards. The Black-Scholes Model requires the input of highly subjective assumptions. Because the Company's employee stock options may have characteristics significantly different from those of traded options, and because changes in the subjective input assumptions can materially affect the fair value estimate, in management's opinion, the existing models may not provide a reliable single measure of the fair value of the Company's employee stock options. Management will continue to assess the assumptions and methodologies used to calculate estimated fair value of share-based compensation. Circumstances may change and additional data may become available over time, which result in changes to these assumptions and methodologies, which could materially impact the Company's fair value determination. The Company estimates the fair value of its restricted stock awards as its stock price on the grant date.

The accounting guidance for share-based compensation may be subject to further interpretation and refinement over time. There are significant differences among option valuation models, and this may result in a lack of comparability with other companies that use different models, methods and assumptions. If factors change and the Company employs different assumptions in the accounting for share-based compensation in future periods, or if the Company decides to use a different valuation model, the compensation expense the Company records in the future may differ significantly from the amount recorded in the current period and could materially affect its loss from operations, net loss and net loss per share.

Income Taxes: Deferred income taxes are provided using the liability method whereby deferred tax assets are recognized for deductible temporary differences and operating loss and tax credit carry forwards and deferred tax liabilities are recognized for taxable temporary differences. Temporary differences are the differences between the reported amounts of assets and liabilities and their tax bases. Deferred tax assets are reduced by a valuation allowance when, in the opinion of management, it is more likely than not that some portion or all of the deferred tax assets will not be realized. Deferred tax assets and liabilities are adjusted for the effects of the changes in tax laws and rates as of the date of enactment. Interest and penalties, if applicable, would be recorded in operations.

The Company has analyzed filing positions in all of the federal and state jurisdictions where it is required to file income tax returns, as well as all open tax years (2014-2017) in these jurisdictions. The Company believes its income tax filing positions and deductions will be sustained on audit and does not anticipate any adjustments that will result in a material adverse effect on the Company's financial condition, results of operations, or cash flows. Therefore, no reserves for uncertain income tax positions have been recorded.

Net Loss per Common Share: Basic loss per share does not include dilution and is computed by dividing income available to common stockholders by the weighted average number of shares outstanding during the period. Diluted earnings per share reflect the potential securities that could share in the earnings of the Company, similar to fully diluted earnings per share. Common stock equivalents outstanding as of December 31, 2018 and 2017 of approximately 834 million and 3 million shares, respectively, have been omitted from loss per share because they are anti-dilutive. Common stock equivalents consist of stock options, preferred stock, preferred stock make-whole dividend liability amounts (assuming the make-whole dividend liability is paid in common stock in lieu of cash), and convertible notes (assuming the amortization payments are paid in common stock in lieu of cash). Net loss per common share was the same for both basic and diluted methods for the periods ended December 31, 2018 and 2017.

Fair Value Estimates: Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. Valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. The Company uses fair value hierarchy based on three levels of inputs, of which, the first two are considered observable and the last unobservable, to measure fair value:

- Level 1 - Quoted prices in active markets for identical assets or liabilities.
- Level 2 - Inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.
- Level 3 - Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

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Certain long-lived assets and current liabilities have been measured at fair value on a recurring and non-recurring basis. See Note 6. Property, Plant and Equipment, Note 10. Secured Promissory Notes and Note 12. Convertible Notes. The carrying amount of our long term debt outstanding approximates fair value because our current borrowing rate does not materially differ from market rates for similar bank borrowings. The carrying value for cash and cash equivalents, restricted cash, accounts receivable, accounts payable, accrued expenses and other assets and liabilities approximate their fair values due to their short maturities.

Related Party Transactions: One of the Company's named shareholders is Tertius Financial Group Pte Ltd, of which Mr. Victor Lee, President and Chief Executive Officer of the Company, is Managing Director and 50% shareholder. Accounting for transactions under these agreements is consistent with those defined in our Significant Accounting Policies. See Note 19 for further information.

Use of Estimates: The preparation of financial statements in conformity with U.S. generally accepted accounting principles ("GAAP") requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Recently Issued Accounting Standards

In May 2014, the FASB issued ASU No. 2014-09, *Revenue from Contracts with Customers (Topic 606)*, and has issued a number of clarifying ASUs subsequently, all of which outline a single comprehensive model for entities to use in accounting for revenue arising from contracts with customers and supersedes most current revenue recognition guidance, including industry-specific guidance. The core principle of the revenue model is that “an entity recognizes revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services.” The standard provides enhancements to the quality and consistency of how revenue is reported by companies, while also improving comparability in the financial statements of companies reporting using International Financial Reporting Standards or U.S. GAAP. The new standard also will require enhanced revenue disclosures, provide guidance for transactions that were not previously addressed comprehensively, and improve guidance for multiple-element arrangements. This accounting standard becomes effective for the Company for reporting periods beginning after December 15, 2017, and interim reporting periods thereafter. Early adoption is permitted for annual reporting periods (including interim periods) beginning after December 15, 2016. This new standard permits the use of either the retrospective or cumulative effect transition method. The implementation of ASU 2014-09 did not have a material effect on the Company's consolidated financial statements.

In February 2016, the FASB issued ASU No. 2016-02, *Leases (Topic 842)*. ASU 2016-02 requires lessees to recognize all leases, including operating leases, on the balance sheet as a lease asset or lease liability, unless the lease is a short-term lease. ASU 2016-02 also requires additional disclosures regarding leasing arrangements. ASU 2016-02 is effective for interim periods and fiscal years beginning after December 15, 2018, and early application is permitted. The Company has evaluated the adoption of this guidance and has determined there will not be a material impact on its consolidated financial statements.

In May 2017, the FASB issued ASU No. 2017-09, *Compensation - Stock Compensation (Topic 718)*. ASU 2017-09 provides guidance about which changes to the terms or conditions of a share-based payment award require an entity to apply modification accounting in Topic 718. ASU 2017-09 is effective for interim periods and fiscal years beginning after December 15, 2017, and early application is permitted. The implementation of ASU 2017-09 did not have a material effect on the Company's consolidated financial statements.

In July 2017, the FASB issued ASU No. 2017-11 *Part I, Earnings Per Share (Topic 260), Distinguishing Liabilities from Equity (Topic 480), Derivatives and Hedging (Topic 815)*. ASU 2017-11 Part I changes the classification analysis of certain equity linked financial instruments with down round features. ASU 2017-11 Part I is effective, for public business entities, for interim periods and fiscal years beginning after December 15, 2018, and early application is permitted. The Company has evaluated the adoption of this guidance and has determined there will not be a material impact on its consolidated financial statements.

In June 2018, the FASB issued ASU No. 2018-07, *Compensation-Stock Compensation (Topic 718): Improvements to Non-employee Share-Based Payment Accounting*, which simplifies the accounting for share-based payments to non-employees by aligning it with the accounting for share-based payments to employees, with specified exceptions. This standard is effective for the Company in the first quarter of 2020, and early adoption is permitted. The Company expects the adoption of this standard will not have a material impact on its consolidated financial statements.

In August 2018, the FASB issued ASU No. 2018-13, *Fair Value Measurement (Topic 820): Disclosure Framework-Changes to the Disclosure Requirements for Fair Value Measurement*, which modifies the disclosure requirements of fair value measurements. This standard is effective for the Company in the first quarter of 2020, and early adoption is permitted. The Company is currently evaluating the impact of the effect adoption of this standard will have on its consolidated financial statements.

Other new pronouncements issued but not effective as of December 31, 2018 are not expected to have a material impact on the Company's consolidated financial statements.

NOTE 4. LIQUIDITY, CONTINUED OPERATIONS, AND GOING CONCERN

During the years ended December 31, 2018 and 2017, the Company entered into multiple financing agreements to fund operations. Further discussion of these transactions can be found in Notes 8, 9, 10, 11, 12, and 14.

The Company has continued limited PV production at its manufacturing facility. The Company does not expect that sales revenue and cash flows will be sufficient to support operations and cash requirements until it has fully implemented its product strategy. During the year ended December 31, 2018 the Company used $4,015,846 in cash for operations. The Company's primary significant long term cash obligation consists of a note payable of $5,378,062 to a financial institution secured by a mortgage on its headquarters and manufacturing building in Thornton, Colorado. Total payments of approximately $693,611, including principal and interest, will come due in the remainder of 2019.

Additional projected product revenues are not anticipated to result in a positive cash flow position for the year 2019 overall and, as of December 31, 2018, the Company has negative working capital. As such, cash liquidity sufficient for the year ending December 31, 2019 will require additional financing.

The Company continues to accelerate sales and marketing efforts related to its consumer and military solar products and specialty PV application strategies through expansion of its sales and distribution channels. The Company has begun activities related to securing additional financing through strategic or financial investors, but there is no assurance the Company will be able to raise additional capital on acceptable terms or at all. If the Company's revenues do not increase rapidly, and/or additional financing is not obtained, the Company will be required to significantly curtail operations to reduce costs and/or sell assets. Such actions would likely have an adverse impact on the Company's future operations.

As a result of the Company's recurring losses from operations, and the need for additional financing to fund its operating and capital requirements, there is uncertainty regarding the Company's ability to maintain liquidity sufficient to operate its business effectively, which raises substantial doubt as to the Company's ability to continue as a going concern. The Company has scaled down its operations, due to cash flow issues, and does not expect to ramp up until significant financing is obtained.

Management cannot provide any assurances that the Company will be successful in accomplishing any of its plans. These consolidated financial statements do not include any adjustments that might be necessary should the Company be unable to continue as a going concern.

NOTE 5. TRADE RECEIVABLES

Trade receivables, net consist of amounts generated from product sales and government contracts. Accounts receivable totaled $165,160 and $6,658 as of December 31, 2018 and 2017, respectively.

Provisional Indirect Cost Rates - The Company bills the government under cost-based research and development contracts at provisional billing rates which permit the recovery of indirect costs. These rates are subject to audit on an annual basis by the government agencies' cognizant audit agency. The cost audit may result in the negotiation and determination of the final indirect cost rates. In the opinion of management, re-determination of any cost-based contracts will not have a material effect on the Company's financial position or results of operations.

NOTE 6. PROPERTY, PLANT AND EQUIPMENT

The following table summarizes property, plant and equipment as of December 31, 2018 and December 31, 2017:

	As of December 31,	
	2017	2017
Building	$ 5,828,960	$ 5,828,960
Furniture, fixtures, computer hardware and computer software	489,421	489,421
Manufacturing machinery and equipment	30,302,806	30,327,481
Depreciable property, plant and equipment	36,621,187	36,645,862
Less: Accumulated depreciation and amortization	(32,207,829)	(32,013,686)
Net property, plant and equipment	$ 4,413,358	$ 4,632,176

The Company analyzes its long-lived assets for impairment, both individually and as a group, whenever events or changes in circumstances indicate that the carrying amount of the assets may not be recoverable.

Depreciation expense for the years ended December 31, 2018 and 2017 was $218,818 and $1,030,237, respectively. Depreciation expense is recorded under "Depreciation and amortization expense" in the Consolidated Statements of Operations.

NOTE 7. INVENTORIES

Inventories consisted of the following at December 31, 2018 and December 31, 2017:

	As of December 31,	
	2018	2017
Raw materials	$ 660,791	$ 688,904
Work in process	—	11,878
Finished goods	—	337,072
Total	$ 660,791	$ 1,037,854

NOTE 8. NOTES PAYABLE

On February 24, 2017, the Company entered into an agreement with a vendor to convert the balance of their account into three notes payable in the aggregate amount of $765,784. The notes bear interest of 6% per annum and matured on February 24, 2018; all outstanding principal and accrued interest is due and payable upon maturity. On June 5, 2018, the Company entered into another agreement with the same vendor to convert the balance of their account into a fourth note payable with a principal amount of $308,041, this note also bears interest at a rate of 6% per annum, and matured on July 31, 2018. As of December 31, 2018, the Company had not made any payments on these notes; the total outstanding principal and accrued interest were $1,073,825 and $96,881, respectively, and the note is due upon demand.

On March 23, 2017, the Company entered into an agreement with a vendor to convert the balance of their account into a note payable in the amount of $356,742. The note bears interest of 5% per annum and matured on March 31, 2018; all outstanding principal and accrued interest is due and payable upon maturity. As of December 31, 2018, the note had been redeemed in stock; on July 25, 2018, the vendor, elected to redeem the note principal balance of $356,742, along with $23,897 in accrued interest, for 2,138,421 shares of common stock. The conversion rate was based on the average of the prior five trading days' closing price.

On June 30, 2017, the Company entered into an agreement with a vendor to convert the balance of their account into a note payable in the amount of $250,000. The note bears interest of 5% per annum and matured on February 28, 2018. As of December 31, 2018, the Company had not made any payments on this note, the accrued interest was $18,801, and the note is due upon demand.

On September 30, 2017, the Company entered into a settlement agreement with a customer to convert the credit balance of their account into a note payable in the amount of $215,234. The note bears interest of 5% per annum and matured on September 30, 2018. The Company has not made the monthly payments of $18,426 that were to commence on October 30, 2017; as of December 31, 2018, the company had paid principal of $22,529 and interest of $897. The remaining principal and interest balances, as of December 31, 2018, were $192,705 and $11,684, respectively.

NOTE 9. DEBT

On February 8, 2008, the Company acquired a manufacturing and office facility in Thornton, Colorado, for approximately $5.5 million. The purchase was financed by a promissory note, deed of trust and construction loan agreement (the "Construction Loan") with the Colorado Housing and Finance Authority ("CHFA"), which provided the Company borrowing availability of up to $7.5 million for the building and building improvements. In 2009, the Construction Loan was converted to a permanent loan pursuant to a Loan Modification Agreement between the Company and CHFA (the "Permanent Loan"). The Permanent Loan, collateralized by the building, has an interest rate of 6.6% and the principal will be amortized through its term to February 2028. Further, pursuant to certain negative covenants in the Permanent Loan, the Company may not, among other things, without CHFA's prior written consent (which by the terms of the deed of trust is subject to a reasonableness requirement): create or incur additional indebtedness (other than obligations created or incurred in the ordinary course of business); merge or consolidate with any other entity; or make loans or advances to the Company's officers, shareholders, directors or employees.

On November 1, 2016, the Company and the CHFA agreed to modify the original agreement described above with the addition of a forbearance period. Per the modification agreement, no payments of principal and interest shall be due under the note during the forbearance period commencing on November 1, 2016 and continuing through April 1, 2017. The amount of interest that should have been paid by the Company during the forbearance period in the total amount of $180,043 shall be added to the outstanding principal balance of the note. As a result, on May 1, 2017, the principal balance of the note was $5,704,932. Commencing on May 1, 2017, the monthly payments of principal and interest due under the note resumed at $57,801, and the Company shall continue to make such monthly payments over the remaining term of the note ending in February 2028.

On August 24, 2018, the Company and the CHFA agreed to modify the original agreement with an additional forbearance period. Per the modification agreement, no payments of principal shall be due under the note during the forbearance period commencing on June 1, 2018 and continuing through November 30, 2018. For each month of forbearance, partial interest of $15,000 per month must be paid, and the remaining unpaid interest of the forbearance period of $84,187 will be added to the outstanding principal balance of the note. As a result, on December 1, 2018, the principal balance of the note will be $5,434,042 and monthly payments of principal and interest of $57,801 will resume, continuing through the remaining term of the note ending in February 2028.

The outstanding principal balance of the Permanent Loan was $5,378,062 and $5,461,819 as of December 31, 2018 and December 31, 2017, respectively.

As of December 31, 2018, remaining future principal payments on long-term debt are due as follows:

2019	$	349,093
2020	$	372,843
2021	$	398,209
2022	$	425,301
2023	$	454,235
Thereafter	$	3,378,381
	$	5,378,062

NOTE 10. SECURED PROMISSORY NOTE

The following table provides a summary of the activity of the Company's secured notes:

	Global Ichiban	St. George	Total
Secured Notes Principal Balance at December 31, 2017	$ 4,557,227	$ —	$ 4,557,227
New notes	1,935,000	1,315,000	3,250,000
Note conversions	(1,426,000)	—	(1,426,000)
Interest redocumented as principal	140,518	—	140,518
Note assignments	(250,000)	—	(250,000)
Secured Notes Principal Balance at December 31, 2018	4,956,745	1,315,000	6,271,745
Less: remaining discount	(2,012,698)	(811,667)	(2,824,365)
Secured Notes, net of discount, at December 31, 2018	**$ 2,944,047**	**$ 503,333**	**$ 3,447,380**

Global Ichiban Secured Promissory Notes

On November 30, 2017, the Company, entered into a note purchase and exchange agreement with Global Ichiban Ltd. ("Global"), for the private placement of up to $2,000,000 of the Company's secured convertible promissory notes in exchange for $2,000,000 of gross proceeds in several tranches through June 2018, The closing of each tranche is conditioned upon the Company having an average daily trading volume for its Common Stock of at least $50,000 for the 20 trading day period preceding such future tranche closing dates.

Pursuant to the terms of the note purchase and exchange agreement, the Company and Global also agreed to exchange certain outstanding securities held by the Global for additional notes. As of November 30, 2017, Global surrendered for cancellation (i) its outstanding promissory note dated September 13, 2017 ($3,359,539 principal and accrued interest), (ii) its outstanding promissory note dated October 31, 2017 ($252,466 principal and accrued interest), and (iii) its 400 shares of outstanding Series J Preferred Stock ($445,222 of capital and accrued dividends). In exchange, the Company issued to Global $4,057,227 aggregate principal amount of additional Notes.

All principal and accrued interest on the notes are redeemable at any time, in whole or in part, at the option of Global. The redemption amount may be paid in cash or converted into shares of common stock at a variable conversion price equal to the lowest of (i) 85% of the average VWAP for the shares over the prior 5 trading days, (ii) the closing bid price for the shares on the prior trading day, or (iii) $2.00 per share, at the option of the Company.

The notes may not be converted, and shares of common stock may not be issued pursuant to the notes, if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 9.99% of the outstanding shares of common stock.

Of the notes issued on November 30, 2017, $3,359,539 aggregate principal amount will mature on December 15, 2020. Principal and interest was originally to be payable in 36 equal monthly installments of $111,585 beginning January 15, 2018. During the year ended December 31, 2018, principal of $(1,426,000) was converted into 3,486,276 shares of common stock, and $140,518 of interest was converted to principal. The remaining note is payable in 30 equal monthly installments of $80,360 beginning July 15, 2018. The Company has not made the payments as outlined in the agreement, this note is due upon demand.

The following table summarizes the conversion activity of this note:

Conversion Period	Principal Converted	Interest Converted	Common Shares Issued
Q1 2018	$ 1,250,000	$ —	2,450,981

Q2 2018	$	176,000	$	—	1,035,295
	$	1,426,000	$	—	3,486,276

Of the notes issued on November 30, 2017, $697,688 aggregate principal amount matured on November 30, 2018. Principal and interest on these notes are due upon demand.

The $2,000,000 aggregate principal amount of notes, issued in eight tranches, will mature on the first anniversary of the respective issuance date. Principal and interest will be payable upon maturity; for the maturity dates that have passed, the note is due upon demand. As of December 31, 2018, the closing dates, closing amounts, and maturity dates on completed note tranches are as follows:

Closing Date	Closing Amount	Maturity Date
11/30/2017	$ 250,000	11/30/2018
12/28/2017	$ 250,000	12/28/2018
1/11/2018	$ 250,000	1/11/2019
1/25/2018	$ 250,000	1/25/2019
2/8/2018	$ 250,000	2/8/2019
2/21/2018	$ 250,000	2/21/2019
3/7/2018	$ 250,000	3/7/2019
3/21/2018	$ 250,000	3/21/2019

On July 6, 2018, the Company issued an additional, promissory note to Global, pursuant to the note purchase and exchange agreement dated November 30, 2017. In accordance with the agreement, the Company issued a note with a principal balance of $135,000 in exchange for gross proceeds of $120,000. This note matures on July 6, 2019. Principal and interest on this note are payable at maturity. The original issue discount of $15,000 will be allocated to interest expense, ratably, over the life of the note. This note is not redeemable in stock.

On October 2, 2018, the Company issued an additional promissory note to Global, pursuant to the note purchase and exchange agreement dated November 30, 2017. In accordance with the agreement, the Company issued a note with a principal balance of $150,000 in exchange for gross proceeds of $125,000. This note matures on October 2, 2019. Principal and interest on this note are payable at maturity. The original issue discount of $25,000 will be allocated to interest expense, ratably, over the life of the note. This note is redeemable in stock, at the discretion of the Company, under the same conversion terms described above.

On October 18, 2018, Global sold one of its notes to another investor. As a result of this sale, $250,000 in principal and $26,466 of accrued interest were assigned to the new investor and is no longer considered secured debt. Please refer to Note 12 for further discussion of this assignment. This note is redeemable in stock, at the discretion of the Company, under the same conversion terms described above.

On October 22, 2018, the Company issued an additional promissory note to Global, pursuant to the note purchase and exchange agreement dated November 30, 2017. In accordance with the agreement, the Company issued a note with a principal balance of $150,000 in exchange for gross proceeds of $125,000. This note matures on October 22, 2019. Principal and interest on this note are payable at maturity. The original issue discount of $25,000 will be allocated to interest expense, ratably, over the life of the note.

All the notes issued in accordance with the note purchase and exchange agreement dated November 30, 2017 are secured by a security interest on substantially all of the Company's assets, bear interest at a rate of 12% per annum and contain standard and customary events of default including but not limited to: (i) failure to make payments when due under the notes, and (ii) bankruptcy or insolvency of the Company. There are no registration rights applicable to the notes.

As of December 31, 2018, the aggregate principal and interest balance of the Notes were $4,956,745 and $455,356, respectively.

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Pursuant to a number of factors outlined in ASC Topic 815, *Derivatives and Hedging*, the conversion option in the notes were deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. The fair value measurements rely primarily on Company-specific inputs and the Company's own assumptions. With the absence of observable inputs, the Company determined these recurring fair value measurements reside primarily within Level 3 of the fair value hierarchy. The derivative associated with the notes approximates management's estimate of the fair value of the embedded derivative liability based on using a Monte Carlo simulation following a Geometric Brownian Motion with the following assumptions identified below.

The following table summarizes the derivative liability transactions for these notes:

Derivative Liability Balance as of December 31, 2017	**$**	**4,897,178**
Additional derivative liability on new notes		1,446,156
Derivative Liability assigned to another investor		(119,039)
Change in fair value of derivative liability		(2,690,434)
Derivative Liability Balance as of December 31, 2018	**$**	**3,533,861**

Due to the varying terms and varying issue dates, the tranches of this instrument were broken into five separate instruments for valuation purposes.

1) The first valuation was done on the November 30, 2017 note with term of three years. The derivative value of this note was $3,742,002 as of December 31, 2017.

2) The second valuation was done on the group of notes dated November 30, 2017, that had a term of one year. The derivative value of this group of notes was $888,168 as of December 31, 2017.

3) The third valuation was done on the note dated December 28, 2017, which had a term of one year. The derivative value of this note was $267,008 on December 31, 2017.

4) For the notes dated in the first quarter of 2018, we did a fourth valuation. Although the notes were entered into at various dates, we used a weighted average issuance date of February 15, 2018 for a combined valuation purpose. Management's analysis, using the following assumptions: annual volatility of 54% present value discount rate of 12% and a dividend yield of 0%, resulted in a fair value of the embedded derivative associated with these Notes of $1,151,162 as of February 15, 2018. The value of the embedded derivative associated with these Notes was recorded as a debt discount and will be charged to interest expense, ratably, over the life of the notes.

5) For the notes dated in the fourth quarter of 2018, we did a fifth valuation. Although the notes were entered into at various dates, we used a weighted average issuance date of October 12, 2018 for a combined valuation purpose. Management's analysis, using the following assumptions: annual volatility of 60% present value discount rate of 12% and a dividend yield of 0%, resulted in a fair value of the embedded derivative associated with these Notes of $294,994 as of October 12, 2018. The fair value of the derivative was greater than the face value at issuance and the difference of $44,994 was charged to interest expense at issuance. The remaining debt discount of $250,000 will be charged to interest expense ratably over the life of the notes.

The derivative liability associated with the notes is subject to revaluation on a quarterly basis to reflect the market value change of the embedded conversion option. At December 31, 2018, the Company conducted a fair value assessment of the embedded derivative associated with the three valuation groups discussed above.

1) For the November 30, 2017 3yr note: Management conducted a fair value assessment with the following assumptions: annual volatility of 65% present value discount rate of 12% and a dividend yield of 0% as of December 31, 2018. As a result of the fair value assessment, the Company recorded a net gain

of $1,977,934 as "Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net" in the Consolidated Statements of Operations to properly reflect the fair value of the embedded derivative of $1,764,068 as of December 31, 2018.

2) For the November 30, 2017 1yr notes: Management conducted a fair value assessment with the following assumptions: annual volatility of 56% present value discount rate of 12% and a dividend yield of 0% as of December 31, 2018. As a result of the fair value assessment, the Company recorded a net gain of $350,164 as "Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net" in the Consolidated Statements of Operations to properly reflect the fair value of the embedded derivative of $418,965 as of December 31, 2018.

   In addition to the fair value assessment, $119,039 of the pre-adjusted derivative liability was assigned to the other investor described above. Please refer to Note 22 for further information.

3) For the December 28, 2017 1yr note: Management conducted a fair value assessment with the following assumptions: annual volatility of 56% present value discount rate of 12% and a dividend yield of 0% as of December 31, 2018. As a result of the fair value assessment, the Company recorded a net gain of $116,882 as "Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net" in the Consolidated Statements of Operations to properly reflect the fair value of the embedded derivative of $150,126 as of December 31, 2018.

4) For the first quarter 2018 1yr notes: Management conducted a fair value assessment with the following assumptions: annual volatility of 56% present value discount rate of 12% and a dividend yield of 0% as of December 31, 2018. As a result of the fair value assessment, the Company recorded a net gain of $250,405 as "Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net" in the Consolidated Statements of Operations to properly reflect the fair value of the embedded derivative of $900,757 as of December 31, 2018.

5) For the fourth quarter 2018 1yr notes: Management conducted a fair value assessment with the following assumptions: annual volatility of 71% present value discount rate of 12% and a dividend yield of 0% as of December 31, 2018. As a result of the fair value assessment, the Company recorded a net loss of $4,951 as "Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net" in the Consolidated Statements of Operations to properly reflect the fair value of the embedded derivative of $299,945 as of December 31, 2018.

The total cumulative net gain for the year ended December 31, 2018 was $2,690,434 to reflect a total derivative liability of $3,533,861 as of December 31, 2018.

Subsequent to the date of this report, the Company conducted additional transactions under this security agreement. Please refer to Note 21 for more information.

St. George Secured Convertible Notes

On May 8, 2018, the Company, entered into a note purchase agreement with St. George Investments LLC ("St. George"), for the private placement of a $575,000 secured convertible promissory note. The Company received $500,000 in aggregate proceeds for the note in two tranches and recorded and original issue discount of $50,000 and debt financing costs of $25,000. The original issue discount and the financing costs will be recognized as interest expense, ratably, over the life of the note. The note bears interest at a rate of 10% per annum and matures on May 9, 2019. All unredeemed principal and accrued interest is payable upon maturity. The note contains standard and customary events of default including but not limited to: (i) failure to make payments when due under the note, and (ii) bankruptcy or insolvency of the Company. In the event of default the interest rate increases to 22% per annum. The note is secured by a junior security interest on the Company's headquarters building, located in Thornton, Colorado. There are no registration rights applicable to this agreement.

Beginning in early November 2018, St. George shall have the option to require the Company to redeem all or a portion of the amounts outstanding under the note. The Company may pay the requested redemption amounts in cash or in the form of shares of common stock (subject to certain specified equity conditions). Payments in the form of Common Stock shall be calculated using a variable conversion price equal to (i) 60% of the average of the two lowest closing bid prices for the shares over (ii) the prior ten day trading period immediately preceding the redemption.

ASCENT SOLAR TECHNOLOGIES, INC.

On November 5, 2018, the Company entered into a second securities purchase agreement with St. George, for the private placement of a $1,220,000 secured convertible promissory note ("Company Note"). On November 7, 2018, the Company received $200,000 of gross proceeds from the offering of the Company Note. In addition, the Company received additional consideration for the Company Note in the form of eight separate promissory notes of St. George (the “Investor Notes”) having an aggregate principal amount of $800,000. The Company may receive additional cash proceeds of up to an aggregate of $800,000 through cash payments made from time to time by St George of principal and interest under the eight Investor Notes. The aggregate principal amount of the Company Note is divided into nine tranches, which tranches correspond to (i) the cash funding received on November 5, 2018 and (ii) the principal amounts of the eight Investor Notes. As of December 31, 2018, the Company had received an additional $400,000 in proceeds and had recorded $740,000 in principal related to the Company and Investor Notes. The Company recorded and original issue discounts of $80,000 and debt financing costs of $20,000, which will be recognized as interest expense, ratably, over the life of the note. As of December 31, 2018, the closing dates, closing amounts, and proceeds on completed Note tranches are as follows:

Closing Date	Closing Amount	Proceeds
11/7/2018	$ 260,000	200,000
11/19/2018	$ 120,000	100,000
11/30/2018	$ 120,000	100,000
12/7/2018	$ 120,000	100,000
12/17/2018	$ 120,000	100,000

The Notes bear interest at a rate of 10% per annum and matures on November 5, 2019. All unredeemed principal and accrued interest is payable upon maturity. The Notes contain standard and customary events of default including but not limited to: (i) failure to make payments when due under the note, and (ii) bankruptcy or insolvency of the Company. In the event of default the interest rate increases to 22% per annum. The Notes are secured by a security interest on the Company's headquarters building, located in Thornton, Colorado. There are no registration rights applicable to this agreement.

Beginning in early May 2019, St. George shall have the option to redeem all or a portion of the amounts outstanding under the Company Note. At St. George's option, redemption amounts are payable by the Company in cash or in the form of shares of the common stock. Conversions into common stock shall be calculated using a variable conversion price equal to 60% of the average of the two lowest closing bid price for the shares over the prior ten day trading period immediately preceding the conversion.

Shares of common stock may not be issued pursuant to the note if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 9.99% of the outstanding shares of common stock.

As of December 31, 2018, the aggregate principal and interest balance of the Notes were $1,315,000 and $45,121, respectively.

Pursuant to a number of factors outlined in ASC Topic 815, *Derivatives and Hedging*, the conversion option in the notes were deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. The fair value measurements rely primarily on Company-specific inputs and the Company’s own assumptions. With the absence of observable inputs, the Company determined these recurring fair value measurements reside primarily within Level 3 of the fair value hierarchy. The derivative associated with the notes approximates management’s estimate of the fair value of the embedded derivative liability based on using a Monte Carlo simulation following a Geometric Brownian Motion with the following assumptions identified below.

The following table summarizes the derivative liability transactions for these notes:

Derivative Liability Balance as of December 31, 2017	**$**	**—**
Additional derivative liability on new notes		1,664,553
Change in fair value of derivative liability		1,628,139
Derivative Liability Balance as of December 31, 2018	**$**	**3,292,692**

Due to the varying terms and varying issue dates, the tranches of this instrument were broken into two separate instruments for valuation purposes.

1) For the May 2018 note, the Company conducted an initial valuation. Management's analysis, using the following assumptions: annual volatility of 50% present value discount rate of 12% and a dividend yield of 0%, resulted in a fair value of the embedded derivative associated with these Notes of $862,439 as of May 8, 2018. The fair value of the derivative was greater than the face value at issuance and the difference of $337,439 was charged to interest expense at issuance. The remaining debt discount of $525,000 will be charged to interest expense ratably over the life of the note.

2) For the Company and Investor Notes, the Company conducted an initial valuation. Although the notes were entered into at various dates, we used a weighted average issuance date of November 26, 2018 for a combined valuation purpose. Management's analysis, using the following assumptions: annual volatility of 62% present value discount rate of 12% and a dividend yield of 0%, resulted in a fair value of the embedded derivative associated with these Notes of $802,114 as of November 26, 2018. The fair value of the derivative was greater than the face value at issuance and the difference of $182,114 was charged to interest expense at issuance. The remaining debt discount of $620,000 will be charged to interest expense ratably over the life of the note.

The derivative liability associated with the notes is subject to revaluation on a quarterly basis to reflect the market value change of the embedded conversion option. At December 31, 2018, the Company conducted a fair value assessment of the embedded derivative associated with the two valuation groups discussed above.

1) For the May 2018 note: Management conducted a fair value assessment with the following assumptions: annual volatility of 85% present value discount rate of 12% and a dividend yield of 0% as of December 31, 2018. As a result of the fair value assessment, the Company recorded a loss of $706,291 as "Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net" in the Consolidated Statements of Operations to properly reflect the fair value of the embedded derivative of $1,568,730 as of December 31, 2018.

2) For the Company and Investor Notes: Management conducted a fair value assessment with the following assumptions: annual volatility of 66% present value discount rate of 12% and a dividend yield of 0% as of December 31, 2018. As a result of the fair value assessment, the Company recorded a loss of $921,848 as "Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net" in the Consolidated Statements of Operations to properly reflect the fair value of the embedded derivative of $1,723,962 as of December 31, 2018.

The total cumulative net loss for the year ended December 31, 2018 was $1,628,139 to reflect a total derivative liability of $3,292,692 as of December 31, 2018.

Subsequent to the date of this report, the Company conducted additional secured transactions with St. George. Please refer to Note 21 for more information.

NOTE 11. PROMISSORY NOTES

The following table provides a summary of the activity of the Company's non-convertible, unsecured, promissory notes:

	Investor 1	Investor 2	Investor 3	Total
Promissory Notes Principal Balance at December 31, 2017	$ 494,437	$ 275,000	$ 200,000	$ 969,437
New notes	—	—	850,000	850,000
Notes redocumented	—	(275,000)	(200,000)	(475,000)
Promissory Notes Principal Balance at December 31, 2018	494,437	—	850,000	1,344,437

Less: remaining discount	—	—	(104,583)	(104,583)
Promissory Notes, net of discount, at December 31, 2018	**$ 494,437**	**$ —**	**$ 745,417**	**$ 1,239,854**

Offering of Unsecured, Non-Convertible Notes to Investor 1

During October 2016, the Company received $420,000 from a private investor "Investor 1". These funds, along with $250,000 of additional funding, were rolled into a promissory note, executed on January 17, 2017, in the amount of $700,000 issued with a discount of $30,000 which was charged to interest expense ratably over the term of the note. The note bears interest at 12% per annum and matures on July 17, 2017. Principal and interest on this note were payable at maturity. This note is not convertible into equity shares of the Company and is unsecured.

On June 30, 2017, the Company and Investor 1 agreed to a 12 month payment plan on the balance of this promissory note. Interest will continue to accrue on this note at 12% per annum and payments of approximately $62,000 will be made monthly beginning in July 2017. The Company has not made all the payments according to this payment plan, and the note is payable upon demand.

As of December 31, 2018, $205,563 of principal and $45,414 of interest had been paid on this note. The outstanding principal and accrued interest balances on the note as of December 31, 2018 were $494,437 and $86,459, respectively.

Offering of Unsecured, Non-Convertible Notes to Investor 2

On November 16, 2017, the Company initiated a non-convertible, unsecured promissory note with another private investor ("Investor 2") for $275,000. The promissory note was issued with an original issue discount of $25,000, resulting in proceeds to the company of $250,000. The note does not have a stated interest rate and matured on December 18, 2017.

On July 25, 2018, the Company, entered into a new securities exchange agreement with Investor 2. Pursuant to the terms of the Exchange Agreement, Investor 2 agreed to surrender and exchange the promissory note with a principal balance of $275,000 in exchange for a convertible note. See Note 12 for further discussion on the new convertible note.

Offering of Unsecured, Non-Convertible Notes to Investor 3

On January 31, 2018, the Company initiated a non-convertible, unsecured promissory note with another private investor ("Investor 3") for an aggregate principal amount of $200,000. The promissory note was issued with an original issue discount of $22,500, which was recorded as interest expense ratably over the term of the note, resulting in proceeds to the company of $177,500, which was received in December 2017. The note bears interest at 12% per annum and matures on December 29, 2018. All principal and interest is payable upon maturity.

On September 7, 2018, the Company, entered into a new securities exchange agreement with Investor 3. Pursuant to the terms of the Exchange Agreement, Investor 3 agreed to surrender and exchange promissory note with a principal balance of $200,000, plus accrued interest of $16,800, in exchange for a convertible note. See Note 12 for further discussion on the new convertible note.

On June 6, 2018, the Company initiated a second non-convertible, unsecured promissory note with Investor 3 for an aggregate principal amount of $315,000. The promissory note was issued with an original issue discount of $55,000, which will be recorded as interest expense ratably over the term of the note, resulting in proceeds to the company of $260,000, that was received in several tranches between February 2018 and April 2018. This note bears interest at 12% per annum and matures on June 6, 2019. All principal and interest is payable upon maturity. As of December 31, 2018, the remaining principal and interest on on this note were $315,000 and $27,090, respectively.

On July 24, 2018, the Company initiated a third non-convertible, unsecured promissory note with Investor 3 for an aggregate principal amount of $115,000. The promissory note was issued with an original issue discount of $27,500, which will be recorded as interest expense ratably over the term of the note, resulting in proceeds to the company of $87,500, which was received in several tranches between May 2018 and June 2018. This note bears interest at 12% per annum and matures on January 24, 2019. All principal and interest is payable upon maturity. As of December 31, 2018, the remaining principal and interest on on this note were $115,000 and $7,923, respectively.

On September 10, 2018, the Company initiated a fourth non-convertible, unsecured promissory note with Investor 3 for an aggregate principal amount of $120,000. The promissory note was issued with an original issue discount of $20,000, which will be recorded as interest expense ratably over the term of the note, resulting in proceeds to the company of $100,000, which was received in several tranches between June 2018 and September 2018. This note bears interest at 12% per annum and matures on March 10, 2019. All principal and interest is payable upon maturity. As of December 31, 2018, the remaining principal and interest on on this note were $120,000 and $5,029, respectively.

On December 31, 2018, the Company initiated a fifth non-convertible, unsecured promissory note with Investor 3 for an aggregate principal amount of $300,000. The promissory note was issued with an original issue discount of $75,000, which will be recorded as interest expense ratably over the term of the note, resulting in proceeds to the company of $225,000, which was received in several tranches between September 2018 and December 2018. This note bears interest at 12% per annum and matures on June 30, 2019. All principal and interest is payable upon maturity. As of December 31, 2018, the remaining principal and interest on on this note were $300,000 and $4,954, respectively.

As of December 31, 2018, the aggregate outstanding principal and interest for Investor 3 was $850,000 and $44,996, respectively.

Subsequent to the date of this report, the Company conducted additional transactions with promissory notes. Please refer to Note 21 for more information.

NOTE 12. CONVERTIBLE NOTES

The following table provides a summary of the activity of the Company's unsecured, convertible, promissory notes:

	Oct 2016 Notes	St. George Note	BayBridge Notes	Bellridge Notes	Power Up Notes	EMA Note	Total
Promissory Notes Principal Balance at December 31, 2017	$ 330,000	$ 1,705,833	$ 565,000	$ —	$ —	$ —	$ 2,600,833
New notes	—	—	—	150,000	225,000	75,000	450,000
Notes redocumented or assigned	—	—	270,000	550,000	—	—	820,000
Notes converted to common stock	—	(606,600)	(772,500)	(245,000)	—	—	(1,624,100)
Promissory Notes Principal Balance at December 31, 2018	330,000	1,099,233	62,500	455,000	225,000	75,000	2,246,733
Less: remaining discount	—	(96,177)	(62,100)	(123,360)	(110,621)	(1,753)	(394,011)
Promissory Notes, net of discount, at December 31, 2018	**$ 330,000**	**$ 1,003,056**	**$ 400**	**$ 331,640**	**$ 114,379**	**$ 73,247**	**$ 1,852,722**

October 2016 Convertible Notes

On October 5, 2016, the Company entered into a securities purchase agreement with a private investor for the private placement of $330,000 principal amount of convertible notes. At Closing, the Company sold and issued $330,000 principal amount of convertible notes in exchange for $330,000 of gross proceeds.

The convertible notes matured on December 31, 2017 and bear interest at a rate of 6% per annum, subject to increase to 24% per annum upon the occurrence and continuance of an event of default. Principal and accrued interest on the convertible notes is payable upon demand, the default interest rate has not been designated by the investor.

All principal and accrued interest on the convertible notes is convertible at any time, in whole or in part, at the option of the investor, into shares of common stock at a variable conversion price equal to 80% of the lowest closing bid price of the Company's common stock for the fifteen consecutive trading day period prior to the conversion date. After the six month anniversary of the issuance of any convertible note, the conversion price for such note shall thereafter be equal to 50% of the lowest closing bid price of the Company's common stock for the fifteen consecutive trading day period prior to the conversion date.

The convertible notes contain standard and customary events of default including but not limited to: (i) failure to make payments when due under the convertible notes; and (ii) bankruptcy or insolvency of the Company.

Outstanding principal and accrued interest on the convertible notes were $330,000 and $44,935, respectively as of December 31, 2018.

Pursuant to a number of factors outlined in ASC Topic 815, *Derivatives and Hedging*, the conversion option in the convertible notes were deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. At closing, a derivative liability and a corresponding debt discount in the amount of $330,000 was recorded. The fair value of the derivative was greater than the face value at issuance and the difference of $341,114 was charged to interest expense at issuance. The remaining debt discount will be charged to interest expense ratably over the life of the October 2016 Convertible Notes. As of December 31, 2017, the fair value of the derivative liability was $572,643.

The following table summarizes the derivative liability transactions for this note:

Derivative Liability Balance as of December 31, 2017	**$**	**572,643**
Additional derivative liability on new notes		—
Change in fair value of derivative liability		303,838
Derivative Liability Balance as of December 31, 2018	**$**	**876,481**

The derivative liability associated with the convertible notes is subject to revaluation on a quarterly basis to reflect the market value change of the embedded conversion option. At December 31, 2018, the Company conducted a fair value assessment of the embedded derivative associated with the convertible notes. As a result of the fair value assessment, the Company recorded a $303,838 loss as "Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net" in the Consolidated Statements of Operations for the year ended December 31, 2018, to properly reflect the fair value of the embedded derivative of $876,481 as of December 31, 2018.

The fair value measurements rely primarily on company-specific inputs and the Company’s own assumptions. With the absence of observable inputs, the Company determined these recurring fair value measurements reside primarily within Level 3 of the fair value hierarchy. The derivative associated with the convertible notes approximates management’s estimate of the fair value of the embedded derivative liability at December 31, 2018 based on using a Monte Carlo simulation following a Geometric Brownian Motion with the following assumptions: annual volatility of 63% present value discount rate of 12% and dividend yield of 0%.

St. George Convertible Note

On September 8, 2017, the Company entered into a securities purchase agreement with St. George Investments, LLC ("St. George") for the private placement of $1,725,000 principal amount of the Company’s original issue discount convertible notes.

On September 11, 2017, the Company sold and issued a $1,725,000 principal convertible note to St. George in exchange for $1,500,000 of gross proceeds, and paid $20,000 in financing costs. The original issue discount of $225,000, and the financing costs, will be charged to interest expense, ratably, over the life of the note.

Unless earlier converted or prepaid, the convertible notes will mature on March 11, 2019. The note does not bear interest in the absence of an event of default. The note is due upon demand and an interest rate has not been designated by St. George.

For the first six months after the issuance of the convertible note, the Company will make a monthly cash repayment on the note of approximately $96,000. Thereafter, St. George may request that the Company make monthly partial redemptions of the note up to $150,000 per month. If St. George does not request the full $150,000 redemption amount in any one month, the unused portion of such monthly redemption amount can be added to future monthly redemption amounts; however, in no event, can the amount requested for any one month exceed $275,000.

Redemption amounts are payable by the Company in cash. Beginning ten months after the issuance of the convertible note, cash redemption payments by the Company will be subject to a 15% redemption premium. The Company recorded an estimated cash premium of $172,500, at inception, which has been charged to interest, ratably, over the life of the note.

Beginning six months after the issuance of the convertible note, the Company also has the option (subject to customary equity conditions) to pay redemption amounts in the form of shares of common stock. Payments in the form of shares would be calculated using a variable conversion price equal to the lower of (i) 85% of the average VWAP for the shares over the prior five trading days or (ii) the closing bid price for the shares on the prior trading day.

On May 1, 2018, effective as of April 3, 2108, in lieu of making the December 2017 through March 2018 cash payments, the the Company agreed to amend the variable conversion price formula outlined in the securities purchase agreement. As amended, payments in the form of shares would be calculated using a variable conversion price equal to the lower of (i) 60% of the lowest VWAP for the shares during the prior five trading days or (ii) the closing bid price for the shares on the prior trading day.

All principal and accrued interest on the convertible note is convertible at any time, in whole or in part, at the option of St. George into shares of common stock at a fixed conversion price of $4.00 per share.

The convertible note contains standard and customary events of default including but not limited to: (i) failure to make payments when due under the Note; and (ii) bankruptcy or insolvency of the Company. Upon the occurrence of an event of default, the convertible note will begin to bear interest at the rate of 22% per annum. In addition, upon the occurrence of an event of default, St. George has the option to increase the outstanding balance of the convertible note by 25%. The default provisions have not been designated by St. George.

In connection with the closing under the securities purchase agreement, the Company issued 37,500 unregistered shares of common stock to St. George as an origination fee. The closing stock price on the date of close was $1.70 resulting in an interest expense of $63,750 being recorded as of the date of close.

The convertible note may not be converted, and shares of common stock may not be issued pursuant to the convertible note if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 4.99% of the outstanding shares of common stock.

As of December 31, 2018, cash payments of $191,667 had been made on the convertible note, and $606,600 had been converted into 15,849,657 shares of the Company's common stock. The remaining balance on the note was $926,733 as of December 31, 2018. The following table summarizes the conversion activity of this note:

Conversion Period		Principal Converted	Common Shares Issued
Q1 2018	$	75,000	187,500
Q2 2018	$	316,600	2,082,778
Q3 2018	$	102,500	3,142,333
Q4 2018	$	112,500	10,437,046
	$	606,600	15,849,657

Pursuant to a number of factors outlined in ASC Topic 815, *Derivatives and Hedging*, the conversion option in the convertible note was deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible note issuance and appropriately recorded that value as a derivative liability. As of December 31, 2017, the derivative liability was $394,280.

The following table summarizes the derivative liability transactions for this note:

Derivative Liability Balance as of December 31, 2017	**$**	**394,280**
Additional derivative liability on new notes		—

Change in fair value of derivative liability	665,720
Derivative Liability Balance as of December 31, 2018	**$ 1,060,000**

The derivative liability associated with the convertible note is subject to revaluation on a quarterly basis to reflect the market value change of the embedded conversion option. At December 31, 2018, the Company conducted a fair value assessment of the embedded derivative associated with the convertible note. As a result of the fair value assessment, the Company recorded a $665,720 net loss as "Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net" in the Consolidated Statements of Operations for the year ended December 31, 2018, to properly reflect the fair value of the embedded derivative of $1,060,000 as of December 31, 2018.

The fair value measurements rely primarily on company-specific inputs and the Company's own assumptions. With the absence of observable inputs, the Company determined these recurring fair value measurements reside primarily within Level 3 of the fair value hierarchy. The derivative associated with the convertible note approximates management's estimate of the fair value of the embedded derivative liability at December 31, 2018 based on using a Monte Carlo simulation following a Geometric Brownian Motion with the following assumptions: annual volatility of 52% present value discount rate of 12% and dividend yield of 0%.

BayBridge Convertible Note

On December 6, 2017, the Company entered into a securities exchange agreement ("Exchange Agreement 1") with BayBridge Capital Fund LP ("BayBridge).

Pursuant to the terms of the Exchange Agreement 1, BayBridge agreed to surrender and exchange 675 shares of outstanding Series J Preferred Stock ($755,417 of capital and accrued dividends) for a convertible note with an aggregate principal amount of $840,000 and an original issue discount of $84,583 ("Exchange Note 1").

Exchange Note 1 is unsecured, has no applicable registration rights, bears interest at a rate of 12% per annum, matures on December 6, 2018, and contains standard and customary events of default including but not limited to: (i) failure to make payments when due under the convertible note, and (ii) bankruptcy or insolvency of the Company. Principal and interest are payable upon maturity.

Payments of principal and accrued interest on Exchange Note 1 are payable in cash or, at the option of the Company, in shares of common stock at a variable conversion price equal to the lowest of (i) 85% of the average VWAP for the shares over the prior five trading days, (ii) the closing bid price for the shares on the prior trading day, or (iii) $3.00 per share. Payments in shares of common stock may not be issued pursuant to the note if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 9.99% of the outstanding shares of Common Stock.

On September 7, 2018, as described in Note 11, the Company, entered into an additional securities exchange agreement ("Exchange Agreement 2") with Baybridge.

Pursuant to the terms of Exchange Agreement 2, BayBridge agreed to surrender and exchanged an outstanding promissory note with a principal balance of $200,000, plus accrued interest of $16,800, for a convertible note with an aggregate principal amount of $270,000 and an original issue discount of $53,200 ("Exchange Note 2").

Exchange Note 2 is unsecured, has no applicable registration rights, bears interest at a rate of 12% per annum, matures on September 7, 2019 and contains standard and customary events of default including but not limited to: (i) failure to make payments when due under the Exchange Note, and (ii) bankruptcy or insolvency of the Company. Principal and interest are payable upon maturity.

BayBridge shall have the right, from and after the date of issuance of Exchange Note 2, and then at any time until Exchange Note 2 is fully paid, to convert any outstanding and unpaid principal and interest into shares of common stock at a variable conversion price equal to the lesser of (i) a price equal to $0.15, or (ii) 70% of the lowest traded price for the shares over the prior five trading days.

Conversion to shares of common stock may not be issued pursuant to Exchange Note 2 if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 9.99% of the outstanding shares of common stock.

As of December 31, 2018, aggregate principal of $1,047,500 and interest of $35,538 had been converted into 20,888,892 shares of common stock and no cash payments of principal or interest had been made on these exchange notes. Exchange Note 1 had been converted in full. The principal and accrued interest balances on Exchange note 2, as of December 31, 2018 were $62,500 and $220, respectively. The following table summarizes the conversion activity of these notes:

Conversion Period		Principal Converted		Interest Converted	Common Shares Issued
Q4 2017	$	275,000	$	—	404,412
Q1 2018	$	105,000	$	20,717	493,007
Q2 2018	$	408,000	$	6,090	2,435,823
Q3 2018	$	52,000	$	4,428	1,547,452
Q4 2018	$	207,500	$	4,303	16,008,198
	$	1,047,500	$	35,538	20,888,892

Pursuant to a number of factors outlined in ASC Topic 815, *Derivatives and Hedging*, the conversion options in these notes were deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability.

The following table summarizes the derivative liability transactions for these notes:

Derivative Liability Balance as of December 31, 2017	**$**	**542,733**
Additional derivative liability on new notes		276,179
Change in fair value of derivative liability		(677,380)
Liability extinguished		(27,686)
Derivative Liability Balance as of December 31, 2018	**$**	**113,846**

At December 31, 2017, the derivative liability associated with Exchange Note 1 was $542,733. During the year ended December 31, 2018, the Company recorded a gain of $515,047 as "Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net" in the Consolidated Statements of Operations. As of December 31, 2018, Exchange Note 1 had been fully converted and the remaining derivative liability of $27,686 was recorded as a gain to "Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net" in the Consolidated Statements of Operations.

The conversion option in Exchange Note 2 was deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. At September 7, 2018, the derivative liability associated with Exchange Note 2 was $276,179.

The derivative liability associated with this note is subject to revaluation on a quarterly basis to reflect the market value change of the embedded conversion option. At December 31, 2018, the Company conducted a fair value assessment of the embedded derivative associated with the Exchange Note 2. As a result of the fair value assessment, the Company recorded a $162,333 gain as "Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net" in the Consolidated Statements of Operations for the year ended December 31, 2018 to properly reflect the fair value of the embedded derivative of $113,846 as of December 31, 2018.

The fair value measurements rely primarily on company-specific inputs and the Company's own assumptions. With the absence of observable inputs, the Company determined these recurring fair value measurements reside primarily within Level 3 of the fair value hierarchy. The derivative associated with Exchange Note 2 approximates management's estimate of the fair value of the embedded derivative liability at December 31, 2018 based on using a Monte Carlo simulation following a Geometric Brownian Motion with the following assumptions: annual volatility of 74%, present value discount rate of 12% and dividend yield of 0%.

Bellridge Convertible Notes

On July 25, 2018, as described in Note 11, the Company, entered into a securities exchange agreement (the “Exchange Agreement”) with Bellridge Capital, LP ("Bellridge"). Pursuant to the terms of the Exchange Agreement, the investor agreed to surrender and exchange a promissory note with a principal balance of $275,000 and accrued interest of $20,071. In exchange, the Company issued to the investor an unsecured convertible note with an aggregate principal amount of $300,000 (the “Exchange Note”). The original issue discount of $4,929 was charged to interest expense upon issuance. The Exchange Note is not secured, bears interest at a rate of 12% per annum, and will mature on January 25, 2019; principal and interest on the Exchange Note are due upon maturity. The investor shall have the right, from and after the date of issuance of this note and then at any time until the note is fully paid, to convert any outstanding and unpaid principal into shares of the Company's common stock at a variable conversion price equal to the lesser of (i) a price equal to $0.20, or (ii) 80% of the lowest traded price for the shares over the prior ten trading days.

On September 14, 2018, the “Company, issued a new $150,000 convertible note in a private placement to Bellridge. The note is not secured, contains no registration rights, bears interest at a rate of 12% per annum, will mature on September 14, 2019, and contains standard and customary events of default including but not limited to: (i) failure to make payments when due under the note, and (ii) bankruptcy or insolvency of the Company. All principal and interest on the note are due upon maturity. Bellridge shall have the option to convert all or a portion of the amounts outstanding under the note, into shares of the Company's common stock. Conversions into common stock shall be calculated using a variable conversion price equal to the lesser of (i) $0.20 or (ii) 70% of the lowest closing bid price for the shares over the prior five day trading period immediately preceding the conversion.

On October 18, 2018, as discussed in Note 10, Global assigned one of its notes to Bellridge. The note had an outstanding principal balance of $250,000 and an accrued interest balance of $26,466. The note matures on October 18, 2019, and all principal and interest is due upon maturity. The principal and accrued interest on the note are redeemable at any time, in whole or in part, at the option of Bellridge. The redemption amount may be paid in cash or converted into shares of common stock at a variable conversion price equal to the lowest of (i) 85% of the average VWAP for the shares over the prior five trading days, (ii) the closing bid price for the shares on the prior trading day, or (iii) $0.20 per share, at the option of the Company.

Shares of common stock may not be issued pursuant to any of these notes if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 4.99% of the outstanding shares of Common Stock.

As of December 31, 2018, an aggregate principal of $245,000 and interest of $6,104, on the Bellridge convertible notes had been converted into 11,269,875 shares of common stock and no cash payments of principal or interest had been made. The aggregate principal and accrued interest balances as of December 31, 2018 were $455,000 and $40,997, respectively. The following table summarizes the conversion activity of these notes:

Conversion Period	Principal Converted	Interest Converted	Common Shares Issued
Q3 2018	$ 137,500	$ 2,104	3,715,476
Q4 2018	$ 107,500	$ 4,000	7,554,399
	$ 245,000	$ 6,104	11,269,875

Pursuant to a number of factors outlined in ASC Topic 815, *Derivatives and Hedging*, the conversion option in these convertible notes were deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability.

The following table summarizes the derivative liability transactions for this note:

Derivative Liability Balance as of December 31, 2017	**$ —**

Additional derivative liability on new notes		236,004
Derivative liability assigned		119,039
Change in fair value of derivative liability		131,236
Derivative Liability Balance as of December 31, 2018	**$**	**486,279**

The conversion option in the Exchange Note was deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. At July 25, 2018, the derivative liability associated with the Exchange Note note was $203,859.

The conversion option in the new convertible note was deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. At September 14, 2018, the derivative liability associated with the convertible note was $32,145.

The conversion option in the assigned convertible note was deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. At October 18, 2018, the derivative liability associated with the convertible note was $119,039.

The derivative liability associated with these notes is subject to revaluation on a quarterly basis to reflect the market value change of the embedded conversion option. At December 31, 2018, the Company conducted a fair value assessment of the embedded derivative associated with the notes. As a result of the fair value assessment, the Company recorded a $131,236 loss as "Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net" in the Consolidated Statements of Operations for the year ended December 31, 2018 to properly reflect the fair value of the embedded derivative of $486,279 as of December 31, 2018.

The fair value measurements rely primarily on Company-specific inputs and the Company’s own assumptions. With the absence of observable inputs, the Company determined these recurring fair value measurements reside primarily within Level 3 of the fair value hierarchy. The derivative associated with the notes approximates management’s estimate of the fair value of the embedded derivative liability at December 31, 2018 based on using a Monte Carlo simulation following a Geometric Brownian Motion with the following assumptions: annual volatility between 40% and 74%, present value discount rate of 12% and dividend yield of 0%.

PowerUp Convertible Notes

On August 1, 2018, the Company, entered into a securities purchase agreement with Power Up Lending Group LTD, for the private placement of a $130,000 convertible note . This note is unsecured, bears interest at a rate of 8% per annum, and matures on August 1, 2019; principal and interest is due upon maturity. In the event of default, the interest rate per annum increases to 22%.

Beginning in February 2019, Power Up shall have the option to convert all or a portion of the amounts outstanding under the convertible note, into shares of the Company's common stock. Conversions into common stock shall be calculated using a variable conversion price equal to 65% of the average of the three lowest closing bid prices for the shares over the prior ten day trading period immediately preceding the conversion.

On September 4, 2018, the Company entered into a second securities purchase agreement with Power Up, for the private placement of a second convertible note with a principal value of $52,500. This note is unsecured, bears interest at a rate of 8% per annum, and matures on September 4, 2019; principal and interest is due upon maturity. In the event of default, the interest rate per annum increases to 22%.

Beginning in March 2019, Power Up shall have the option to convert all or a portion of the amounts outstanding under the convertible note, into shares of the Company's common stock. Conversions into common stock shall be calculated using a variable conversion price equal to 65% of the average of the three lowest trading prices for the shares over the prior ten day trading period immediately preceding the conversion.

On October 17, 2018, the Company entered into a second securities purchase agreement with Power Up, for the private placement of a third convertible note with a principal value of $42,500. This note is unsecured, bears interest at a rate of 8% per annum, and matures on October 16, 2019; principal and interest is due upon maturity. In the event of default, the interest rate per annum increases to 22%.

Beginning in April 2019, Power Up shall have the option to convert all or a portion of the amounts outstanding under the convertible note, into shares of the Company's common stock. Conversions into common stock shall be calculated using a variable conversion price equal to 65% of the average of the three lowest trading prices for the shares over the prior ten day trading period immediately preceding the conversion.

Shares of common stock may not be issued pursuant to any of these notes if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 4.99% of the outstanding shares of Common Stock.

As of December 31, 2018, no principal or interest had been converted into shares of common stock and no cash payments of principal or interest had been made. The aggregate principal and accrued interest balances as of December 31, 2018 were $225,000 and $6,388, respectively.

The following table summarizes the derivative liability transactions for this note:

Derivative Liability Balance as of December 31, 2017	**$**	**—**
Additional derivative liability on new notes		246,860
Change in fair value of derivative liability		264,277
Derivative Liability Balance as of December 31, 2018	**$**	**511,137**

Pursuant to a number of factors outlined in ASC Topic 815, *Derivatives and Hedging*, the conversion option in the first note was deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. At August 1, 2018, the derivative liability associated with the first note was $78,382.

The conversion option in the second note was deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. At September 4, 2018, the derivative liability associated with the second note was $128,613.

The conversion option in the third note was deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. At October 17, 2018, the derivative liability associated with the second note was $39,865.

The derivative liability associated with these notes is subject to revaluation on a quarterly basis to reflect the market value change of the embedded conversion option. At December 31, 2018, the Company conducted a fair value assessment of the embedded derivative associated with the notes. As a result of the fair value assessment, the Company recorded a $264,277 loss as "Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net" in the Consolidated Statements of Operations for the year ended December 31, 2018 to properly reflect the fair value of the embedded derivative of $511,137 as of December 31, 2018.

The fair value measurements rely primarily on company-specific inputs and the Company’s own assumptions. With the absence of observable inputs, the Company determined these recurring fair value measurements reside primarily within Level 3 of the fair value hierarchy. The derivative associated with the convertible notes approximates management’s estimate of the fair value of the embedded derivative liability at December 31, 2018 based on using a Monte Carlo simulation following a Geometric Brownian Motion with the following assumptions: annual volatility between 70% and 76%, present value discount rate of 12% and dividend yield of 0%.

EMA Convertible Note

On August 29, 2018, the Company, entered into a securities purchase agreement with EMA Financial, LLC, for the private placement of a $75,000 convertible note. The note is unsecured, bears interest at a rate of 8% per annum, and matures on May 29, 2019; principal and interest is due upon maturity. In the event of default, the interest rate per annum increases to 22%.

Beginning in March 2019, EMA shall have the option to convert all or a portion of the amounts outstanding under the note, into shares of the Company's Common Stock. Conversions into Common Stock shall be calculated using a variable conversion price equal to 65% of the average of the three lowest closing bid prices for the shares over the prior ten day trading period immediately preceding the conversion.

Shares of common stock may not be issued pursuant to the note if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 4.99% of the outstanding shares of common stock.

As of December 31, 2018, no principal or interest had been converted into shares of common stock and no cash payments of principal or interest had been made. The principal and accrued interest balances as of December 31, 2018 were $75,000 and $2,038, respectively.

The following table summarizes the derivative liability transactions for this note:

Derivative Liability Balance as of December 31, 2017	**$**	**—**
Additional derivative liability on new notes		3,945
Change in fair value of derivative liability		236,211
Derivative Liability Balance as of December 31, 2018	**$**	**240,156**

Pursuant to a number of factors outlined in ASC Topic 815, *Derivatives and Hedging*, the conversion option in the note was deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. At August 29, 2018, the derivative liability associated with the note was $3,945.

The derivative liability associated with the note is subject to revaluation on a quarterly basis to reflect the market value change of the embedded conversion option. At December 31, 2018, the Company conducted a fair value assessment of the embedded derivative associated with the note. As a result of the fair value assessment, the Company recorded a $236,211 loss as "Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net" in the Consolidated Statements of Operations for the year ended December 31, 2018 to properly reflect the fair value of the embedded derivative of $240,156 as of December 31, 2018.

The fair value measurements rely primarily on Company-specific inputs and the Company's own assumptions. With the absence of observable inputs, the Company determined these recurring fair value measurements reside primarily within Level 3 of the fair value hierarchy. The derivative associated with the Notes approximates management's estimate of the fair value of the embedded derivative liability at December 31, 2018 based on using a Monte Carlo simulation following a Geometric Brownian Motion with the following assumptions: annual volatility of 87%, present value discount rate of 12% and dividend yield of 0%.

Subsequent to the date of this report, the Company conducted additional transactions with convertible notes. Please refer to Note 21 for more information.

NOTE 13. SERIES A PREFERRED STOCK

In June 2013, the Company entered into a Securities Purchase Agreement with an investor to sell an aggregate of $750,000 shares of Series A Preferred Stock at a price of $8.00 per share, resulting in gross proceeds of $6,000,000. This purchase agreement included warrants to purchase up to 13,125 shares of common stock of the Company. The transfer of cash and securities took place incrementally, the first closing occurring on June 17, 2013 with the transfer of 125,000 shares of Series A Preferred Stock and a warrant to purchase 2,187 shares of common stock for $1,000,000. The final closings took place in August 2013, with the transfer of 625,000 shares of Series A Preferred Stock and a warrant to purchase 10,938 shares of common stock for $5,000,000.

Holders of Series A Preferred Stock are entitled to cumulative dividends at a rate of 8% per annum when and if declared by the Board of Directors in its sole discretion. The dividends may be paid in cash or in the form of common stock (valued at 10% below market price, but not to exceed the lowest closing price during the applicable measurement period), at the discretion of the Board of Directors. The dividend rate on the Series A Preferred Stock is indexed to the Company's stock price and subject to adjustment. In addition, the Series A Preferred Stock contains a make-whole provision whereby, conversion or redemption of the preferred stock within 4 years of issuance will require dividends for the full four year period to be paid by the Company in cash or common stock (valued at 10% below market price, but not to exceed the lowest closing price during the applicable measurement period). This make-whole provision expired in June 2017.

The Series A Preferred Stock may be converted into shares of common stock at the option of the Company if the closing price of the common stock exceeds $232, as adjusted, for twenty consecutive trading days, or by the holder at any time. The Company has the right to redeem the Series A Preferred Stock at a price of $8.00 per share, plus any accrued and unpaid dividends, plus the make-whole amount (if applicable). At December 31, 2018, the preferred shares were not eligible for conversion to common shares at the option of the Company. The holder of the preferred shares may convert to common shares at any time, at no cost, at a ratio of 1 preferred share into 1 common share (subject to standard ratable anti-dilution adjustments). Upon any conversion (whether at the option of the Company or the holder), the holder is entitled to receive any accrued but unpaid dividends.

On October 6, 2016, the Series A Holder entered into an exchange agreement with a private investor. Pursuant to the exchange agreement, beginning December 5, 2016, the investor has the option to exchange, from time to time, all or any portion of the October 2016 Convertible Notes (see Note 12) for outstanding shares of Series A Preferred Stock from the Series A Holder.

As of March 31, 2017, the investor had elected to exchange all outstanding October 2016 Convertible Notes, in accordance with the exchange agreement, resulting in the exchange of 104,785 shares of Series A Preferred Stock. As of March 31, 2017, the investor had also converted their 104,785 shares of Series A Preferred Stock, and the related make whole dividend, which resulted in the issuance of 173,947 shares of common stock.

Except as otherwise required by law (or with respect to approval of certain actions), the Series A Preferred Stock shall have no voting rights. Upon any liquidation, dissolution or winding up of the Company, after payment or provision for payment of debts and other liabilities of the Company, the holders of Series A Preferred Stock shall be entitled to receive, pari passu with any distribution to the holders of common stock of the Company, an amount equal to $8 per share of Series A Preferred Stock plus any accrued and unpaid dividends.

During the year ended December 31, 2018, there was no activity for the Series A Preferred Stock. As of December 31, 2018, there were 60,756 shares of Series A Preferred Stock outstanding and accrued and unpaid dividends of $341,415.

Subsequent to the date of this report, the Company conducted additional transactions with Series A Preferred Stock. Please refer to Note 21 for more information.

NOTE 14. SERIES K PREFERRED STOCK

On February 8, 2017, the Company, entered into a securities purchase agreement (“Series K SPA”) with a private investor, for the private placement of up to 20,000,000 of the Company’s newly designated Series K Convertible Preferred Stock (“Series K Preferred Stock”).

Per the terms of the Series K SPA, the Company was scheduled to sell 1,000 shares of Series K Preferred Stock to the investor in exchange for $1,000,000 of gross proceeds on or before each of (i) February 24, 2017, (ii) March 27, 2017, (iii) April 27, 2017, (iv) May 27, 2017 and (v) June 27, 2017. The Company was also scheduled to sell 15,000 shares of Series K Preferred Stock to the investor in exchange for $15,000,000 of gross proceeds on or before July 27, 2017. As of December 31, 2018, the Company had sold 9,010 shares of Series K Preferred Stock in exchange for $9,010,000 in cash proceeds from the private investor. The Company does not expect to receive any more funding from this investor. The following summarizes the closings and proceeds received as of December 31, 2018:

Closing Period	Preferred Series K Shares Purchased	Closing Amount
Q1 2017	150	$ 150,000
Q2 2017	4,100	$ 4,100,000
Q3 2017	4,760	$ 4,760,000
	9,010	$ 9,010,000

The Series K Preferred Stock ranks senior to the Company's common stock in respect to dividends and rights upon liquidation. The Series K Preferred Stock will not have voting rights and the holders of the Series K Preferred Stock will not be entitled to any fixed rate of dividends.

The shares of the Series K Preferred Stock will be convertible at the option of the holder into common stock at a fixed conversion price equal to $4.00. At no time may the Series K Preferred Stock be converted if the number of shares of common stock to be received by Investor pursuant to such conversion, when aggregated with all other shares of common stock then beneficially (or deemed beneficially) owned by Investor, would result in Investor beneficially owning more than 19.99% of all common stock then outstanding. As of December 31, 2018, the investor had converted all of the Series K Preferred Stock into shares of common stock. The following table summarizes the conversion activity of Series K Preferred Stock:

Conversion Period	Preferred Series K Shares Converted	Value of Series K Preferred Shares	Common Shares Issued
Q2 2017	3,200	$ 3,200,000	800,000
Q3 2017	3,000	$ 3,000,000	750,000
Q2 2018	2,810	$ 2,810,000	702,500
	9,010	$ 9,010,000	2,252,500

As of December 31, 2018, the investor owned approximately 4% of the Company's outstanding common stock.

Upon issuance, in accordance with ASC 480-10, the Series K Preferred Stock was classified as a liability on the 2017 Consolidated Balance Sheet. Pursuant to a number of factors outlined in ASC Topic 815, the conversion option in the Series K Preferred Stock was deemed to not require bifurcation or separate accounting treatment.

NOTE 15. STOCKHOLDERS' EQUITY (DEFICIT)

Common Stock

Reverse Stock Split

On July 19, 2018, the Company, filed a Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company (the "Certificate of Amendment") with the Secretary of State of the State of Delaware to effect a reverse stock split of the Company's common stock, at a ratio of one-for-one thousand (the "Reverse Stock Split").

The Certificate of Amendment provides that the Reverse Stock Split became effective as of 5:00 p.m. Eastern Time on July 20, 2018 (the "Effective Time"), at which time every thousand shares of the Company's issued and outstanding Common Stock were automatically combined into one issued and outstanding share of Common Stock, without any change in the par value per share. The Certificate of Amendment provides that in the event a stockholder would otherwise be entitled to receive a fraction of a share of Common Stock, such stockholder shall receive one whole share of Common Stock in lieu of such fractional share and no fractional shares shall be issued.

Immediately following the Reverse Stock Split, the Company had approximately 19 million shares of Common Stock issued and outstanding. The number of authorized shares of the Company's Common Stock remains at 20 billion. The number of shares of the Company's Series A preferred stock outstanding was not affected by the Reverse Stock Split. However, the number of shares of Common Stock into which each outstanding share of Series A preferred stock is convertible will be adjusted proportionately as a result of the Reverse Stock Split. All outstanding RSUs, stock options, warrants and rights to purchase shares of Common Stock was adjusted proportionately.

Trading of the Company's Common Stock continued on the OTC Marketplace on a split-adjusted basis on July 23, 2018.

At December 31, 2018, the Company had 20 billion shares of common stock, $0.0001 par value, authorized for issuance. Each share of common stock has the right to one vote. As of December 31, 2018, the Company had 63,537,885 shares of common stock outstanding. The Company has not declared or paid any dividends related to the common stock through December 31, 2018.

Preferred Stock

At December 31, 2018, the Company had 25,000,000 shares of preferred stock, $0.0001 par value, authorized for issuance. Preferred stock may be issued in classes or series. Designations, powers, preferences, rights, qualifications, limitations and restrictions are determined by the Company’s Board of Directors. The following table summarizes the designations, shares authorized, and shares outstanding for the Company's Preferred Stock:

ASCENT SOLAR TECHNOLOGIES, INC.

Preferred Stock Series Designation	Shares Authorized	Shares Outstanding
Series A	750,000	60,756
Series B-1	2,000	—
Series B-2	1,000	—
Series C	1,000	—
Series D	3,000	—
Series D-1	2,500	—
Series E	2,800	—
Series F	7,000	—
Series G	2,000	—
Series H	2,500	—
Series I	1,000	—
Series J	1,350	—
Series J-1	1,000	—
Series K	20,000	—

Series A Preferred Stock

Refer to Note 13 for Series A Preferred Stock activity.

Series B-1, B-2, C, D, D-1, H, and I Preferred Stock

There were no transactions involving the Series B-1, B-2, C, D, D-1, H, or I during the years ended December 31, 2017 and December 31, 2018.

Series E Preferred Stock

During the year ended December 31, 2017, the Company converted 120 shares of Series E Preferred Stock, a capital value of $120,000, and dividends of $11,948, for 272,532 shares of common stock. There was no Series E Preferred Stock activity during the year ended December 31, 2018.

Series F Preferred Stock

During the year ended December 31, 2017, the Company converted 160 shares of Series F Preferred Stock, a capital value of $160,000, and dividends of $467, for 190,735 shares of common stock. There was no Series F Preferred Stock activity during the year ended December 31, 2018.

Series G Preferred Stock

During the year ended December 31, 2017, the Company converted 898 shares of Series G Preferred Stock, a capital value of $898,000, and dividends of $75,066, for 1,665,496 shares of common stock. There was no Series G Preferred Stock activity during the year ended December 31, 2018.

Series J Preferred Stock

During the year ended December 31, 2017, the Company converted 275 shares of Series J Preferred Stock, a capital value of $275,000, and dividends of $15,063, for 386,551 shares of common stock. Also, during the year ended December 31, 2017, the Company redocumented 1,075 shares of Series J Preferred Stock, a capital value of $1,075,000, and dividends of $125,639 as convertible notes. Please refer to Notes 10 and 12 for further information. There was no Series J Preferred Stock activity during the year ended December 31, 2018.

Series J-1 Preferred Stock

During the year ended December 31, 2017, the Company converted 700 shares of Series J-1 Preferred Stock, a capital value of $700,000, and dividends of $55,305, for 500,000 shares of common stock. There was no Series J-1 Preferred Stock activity during the year ended December 31, 2018.

Series K Preferred Stock

Refer to Note 14 for Series K Preferred Stock activity.

Warrants

On July 24, 2017, the Company issued a warrant for 250,000 shares of common stock, in connection with a settlement agreement with a consultant. The warrant is exerciseable at a fixed exercise price of $4, on the issuance date through the first anniversary of the issuance date. The warrant may not be exercised if, after giving effect to the exercise, the holder, together with its affiliates, would beneficially own in excess of 9.99% of the Company's outstanding shares of common stock.

The Company conducted a fair value assessment of the warrant upon issuance using a Black Scholes model with the following inputs: stock price on the date of issuance of $0.70, stock volatility of 234%, and a risk free rate of 1.23%. Using these parameters, the Company calculated a fair value of $88,937 and recorded a corresponding expense on the Company's consolidated and statement of operations. As of December 31, 2018, these warrants have expired.

On August 10, 2017, the Company issued a warrant for 250,000 shares of common stock in connection with a preferred stock redemption agreement. The warrant is exerciseable, at a fixed exercise price of $3, on the issuance date through the first anniversary of the issuance date. The Warrant may not be exercised if, after giving effect to the exercise, the holder, together with its affiliates, would beneficially own in excess of 9.99% of the Company's outstanding shares of common stock.

The Company conducted a fair value assessment of the warrant upon issuance using a Black Scholes model with the following inputs: stock price on the date of issuance of $1.50, stock volatility of 230%, and a risk free rate of 1.22%. Using these parameters, the Company calculated a fair value of $246,803 and recorded a corresponding expense on the Company's consolidated and statement of operations. As of December 31, 2018, these warrants have expired.

On December 15, 2017, the Company issued a warrant for 200,000 shares of common stock in connection with a consulting agreement. The warrant is exerciseable, at a fixed exercise price of $1.8, on the issuance date through the June 30, 2018. The Warrant may not be exercised if, after giving effect to the exercise, the holder, together with its affiliates, would beneficially own in excess of 9.99% of the Company's outstanding shares of common stock.

The Company conducted a fair value assessment of the warrant upon issuance using a Black Scholes model with the following inputs: stock price on the date of issuance of $0.80, stock volatility of 99%, and a risk free rate of 1.48%. Using these parameters, the Company calculated a fair value of $10,035 and recorded a corresponding expense on the Company's consolidated statement of operations. As of December 31, 2018, these warrants have expired.

The following table summarizes warrant activity:

	Warrant Shares	Warrant Weighted Average Exercise Price
Outstanding at December 31, 2016	—	$ —
Granted	700,000	$ 3.01
Exercised	—	$ —
Canceled/Expired	—	$ —
Outstanding at December 31, 2017	700,000	$ 3.01
Granted	—	$ —
Exercised	$ —	$ —
Canceled/Expired	(700,000)	$ 3.01
Outstanding at December 31, 2018	—	$ —
Exercisable at December 31, 2018	—	$ —

NOTE 16. EQUITY PLANS AND SHARE-BASED COMPENSATION

Stock Option Plan: The Company's 2005 Stock Option Plan, as amended (the "Stock Option Plan") provides for the grant of incentive or non-statutory stock options to the Company's employees, directors and consultants. The stock Option Plan initially reserved 170,000 shares of the Company's common stock for option awards to eligible employees. Upon recommendation of the Board of Directors, the stockholders approved an increase in the total shares of common stock reserved for issuance under the Stock Option Plan to 270,000 during 2015. There were no changes to the plan in 2017 or 2018.

Restricted Stock Plan: The Company's 2008 Restricted Stock Plan, as amended (the "Restricted Stock Plan") was adopted by the Board of Directors and was approved by the stockholders on July 1, 2008. The Restricted Stock Plan initially reserved up to 75,000 shares of the Company's common stock for restricted stock awards and restricted stock units to eligible employees, directors and consultants of the Company. Upon recommendation of the Board of Directors, the stockholders approved an increase in the total shares of common stock reserved for issuance under the Restricted Stock Plan to 125,000 and 750,000 shares during 2015 and 2016, respectively. There were no changes to the plan in 2017 or 2018.

The Stock Option Plan and the Restricted Stock Plan are administered by the Compensation Committee of the Board of Directors, which determines the terms of the option and share awards, including the exercise price, expiration date, vesting schedule and number of shares. The term of any incentive stock option granted under the Stock Option Plan may not exceed ten years, or five years for options granted to an optionee owning more than 10% of the Company's voting stock. The exercise price of an incentive stock option granted under the Option Plan must be equal to or greater than the fair market value of the shares of the Company's common stock on the date the option is granted. An incentive stock option granted to an optionee owning more than 10% of the Company's voting stock must have an exercise price equal to or greater than 110% of the fair market value of the Company's common stock on the date the option is granted. The exercise price of a non-statutory option granted under the Option Plan must be equal to or greater than 85% of the fair market value of the shares of the Company's common stock on the date the option is granted.

Share-Based Compensation: The Company measures share-based compensation cost at the grant date based on the fair value of the award and recognizes this cost as an expense over the grant recipients' requisite service periods for all awards made to employees, officers, directors and consultants.

The share-based compensation expense recognized in the Consolidated Statements of Operations was as follows:

	For year ended December 31,	
	2018	2017
Research and development	$ 642	$ 18,231
Selling, general and administrative	$ 28,623	$ 105,037
Total share-based compensation cost	$ 29,265	$ 123,268

The following table presents share-based compensation expense by type:

	For year ended December 31,			
	2018		2017	
Type of Award:				
Stock Options	$	29,265	$	96,938
Restricted Stock Units and Awards	$	—	$	26,330
Total share-based compensation cost	$	29,265	$	123,268

Stock Options: The Company recognized share-based compensation expense for stock options of $29,265 to officers, directors and employees for the year ended December 31, 2018 related to stock option awards, reduced for estimated forfeitures. There were no option grants during the years ended December 31, 2018 or December 31, 2017.

As of December 31, 2018, total compensation cost related to non-vested stock options not yet recognized was $9,578 which is expected to be recognized over a weighted average period of approximately 0.46 years. As of December 31, 2018, 109 shares were vested or expected to vest in the future and 107 shares remained available for future grants under the Option Plan.

The following table summarizes stock option activity within the Stock Option Plan:

	Stock Option Shares	Weighted Average Remaining Contractual Life in Years
Outstanding at December 31, 2016	250	8.28
Granted	—	
Exercised	—	
Canceled	(55)	
Outstanding at December 31, 2017	195	7.32
Granted	—	
Exercised	—	
Canceled	(85)	
Outstanding at December 31, 2018	110	5.18
Exercisable at December 31, 2018	105	5.13

Restricted Stock: The Company did not recognized share-based compensation expense related to restricted stock grants for the year ended December 31, 2018. During the year ended December 31, 2017, the Company recognized approximately $26,000 in share-based compensation related to restricted stock grants. There were no restricted stock grants for the years ended December 31, 2018 and December 31, 2017.

As of December 31, 2018, there was no unrecognized share-based compensation expense from unvested restricted stock, no shares were expected to vest in the future, and 496 shares remained available for future grants under the Restricted Stock Plan.

NOTE 17. INCOME TAXES

The company record income taxes using the liability method. Under this method, deferred tax assets and are computed for the expected future impact of temporary differences between the financial statement and income tax bases of assets and liabilities using current income tax rates and for the expected future tax benefit to be derived from tax loss and tax credit carryforwards. ASC 740 provides detailed guidance for the financial statement recognition, measurement and disclosure of uncertain tax positions recognized in the financial statements. Tax positions must meet a "more-likely-than-not" recognition threshold before a benefit is recognized in the financial statements.

At December 31, 2018, the Company had $255,470,676 of cumulative net operating loss carryforwards for federal income tax purposes that were available to offset future taxable income through the year 2308. Under the Internal Revenue Code, the future utilization of net operating losses may be limited in certain circumstances where there is a significant ownership change. The Company prepared and analysis for the year ended December 31, 2012 and determined that a significant change in ownership had occurred as a result of the cumulative effect of the sales of common stock through its offerings. Such change limited the Company's utilizable net operating loss carryforwards to $255,470,676 for the year ended December 31, 2018. Available net operating loss carryforwards may be further limited in the event of another significant ownership change.

Deferred income taxes reflect an estimate of the cumulative temporary differences recognized for financial reporting purposes from that recognized for income tax reporting purposes. At December 31, 2018 and 2017, the components of these temporary differences and the deferred tax asset were as follows:

	As of December 31	
	2018	2017
Deferred Tax Asset		
Accrued Expenses	$ 30,000	$ —
Inventory Allowance	$ 184,000	$ 141,000
Other	$ 11,000	$ 13,000
Stock Based Compensation-Stock Options and Restricted Stock	$ 1,021,000	$ 1,058,000
Tax effect of NOL carryforward	$ 64,519,000	$ 67,852,000
Depreciation	$ 5,957,000	$ 8,748,000
Amortization	$ (213,000)	$ (368,000)
Disallowed interest expense	$ 452,000	$ —
Warranty reserve	$ 7,000	$ 14,000
Net deferred tax asset	$ 71,968,000	$ 77,458,000
Less valuation allowance	$ (71,968,000)	$ (77,458,000)
Net deferred tax asset	$ —	$ —

In assessing the realizability of deferred tax assets, management considers whether it is more likely than not that some portion or all of the deferred tax assets will be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the periods in which those temporary differences become deductible. Management considers the scheduled reversal of deferred tax liabilities, projected future taxable income and tax planning strategies in making this assessment. Based upon the level of historical losses and projections of future taxable income over the periods in which the deferred tax assets are deductible, management believes it is not more-likely-than-not that the Company will realize the benefits of these deductible differences at December 31, 2018. The Company's deferred tax valuation allowance of $71,968,000 reflected above is a decrease of $5,490,000 from the valuation allowance reflected as of December 31, 2017 of $77,458,000.

As of December 31, 2018, the Company has not recorded a liability for uncertain tax positions. The Company recognizes interest and penalties related to uncertain tax positions in income tax (benefit)/expense. No interest and penalties related to uncertain tax positions were accrued at December 31, 2018.

The Company's effective tax rate for the years ended December 31, 2018 and 2017 differs from the statutory rate due to the following (expressed as a percentage of pre-tax income):

	2018	2017
Federal statutory rate	21.0 %	35.0 %
State statutory rate	3.6 %	2.8 %
Change in rate	(0.8)%	— %
Permanent tax differences	(0.1)%	(2.3)%
Derivative/Warrant Revaluation	— %	8.4 %
Debt Discount	— %	(5.5)%
Loss on Extinguishment of Liabilities	(3.5)%	(4.9)%
Deferred true-ups	(54.2)%	— %
Other	— %	(0.9)%
Change in valuation allowance	34.0 %	(32.6)%
	— %	— %

NOTE 18. RELATED PARTY TRANSACTIONS

On August 29, 2016, the Company entered into a note purchase agreement with Tertius Financial Group Pte. Ltd. ("TFG") for the private placement of $330,000 of the Company's original issue discount notes with an original maturity date of November 29, 2016. The notes bear interest of 6% per annum and principal and interest on the notes are payable upon maturity. The notes are unsecured and not convertible into equity shares of the Company.

On December 6, 2016, the Company issued a new $600,000 original issue discount note to TFG in exchange for (i) $200,000 of additional gross proceeds and (ii) cancellation of the existing outstanding $330,000 note. The new TFG note bears interest at a rate of 6% per annum and matures on December 31, 2017. Principal and interest on the new TFG note is payable at maturity. Following the transaction, the outstanding balance of the new note was $602,000 (including accrued and unpaid interest) with a discount of $60,000.

On January 19, 2017, the Company issued 333,334 shares of unregistered common stock in a private placement to TFG pursuant to a Securities Purchase Agreement (the "SPA").

Pursuant to the SPA, the Company issued the 333,334 shares to TFG in exchange for cancellation of its $600,000 promissory note (including accrued interest of approximately $4,340) that was issued by the Company on December 6, 2016. The SPA does not provide any registration rights for the shares issued to TFG.

TFG is a Singapore based entity controlled and 50% owned by Ascent's President & CEO, Victor Lee, and owns approximately 1% of the Company's outstanding shares at December 31, 2018.

All related party transactions were approved by our independent board of directors.

NOTE 19. COMMITMENTS AND CONTINGENCIES

The Company is subject to various legal proceedings, both asserted and unasserted, that arise in the ordinary course of business. The Company cannot predict the ultimate outcome of such legal proceedings or in certain instances provide reasonable ranges of potential losses. However, as of the date of this report, the Company believes that none of these claims will have a material adverse effect on its consolidated financial position or results of operations. In the event of unexpected subsequent developments and given the inherent unpredictability of these legal proceedings, there can be no assurance that the Company’s assessment of any claim will reflect the ultimate outcome, and an adverse outcome in certain matters could, from time to time, have a material adverse effect on the Company’s consolidated financial position or results of operations in particular quarterly or annual periods.

NOTE 20. RETIREMENT PLAN

On July 1, 2006, the Company adopted a qualified 401(k) plan which provides retirement benefits for all of its eligible employees. Under the plan, employees become eligible to participate at the first entry date, provided they are at least 21 years of age. The participants may elect through salary reduction to contribute up to ceilings established in the Internal Revenue Code. The Company will match 100% of the first six percent of employee contributions. In addition, the Company may make discretionary contributions to the Plan as determined by the Board of Directors. Employees are immediately vested in all salary reduction contributions. Rights to benefits provided by the Company's discretionary and matching contributions vest 100% after the first year of service for all employees hired before January 1, 2010. For employees hired after December 31, 2009, matching contributions vest over a three-year period, one-third per year. Payments for 401(k) matching totaled $108,776 and $199,669 for the years ended December 31, 2018 and 2017, respectively. Payments for 401(k) matching are recorded under "Research, development and manufacturing operations" expense and "Selling, general and administrative" expense in the Consolidated Statements of Operations.

NOTE 21. SUBSEQUENT EVENTS

Offering of Secured Promissory Note

Between January 3, 2019 and February 8, 2019, in four tranches, the Company received the remaining $400,000 proceeds related to the securities purchase agreement, dated November 5, 2018, with St. George (Note 10). As a result the principal balance of this secured convertible note is $1,220,000 as of the filing date of this report.

On March 13, 2019, the Company entered into a securities purchase agreement with St. George (Note 10), for the private placement of an additional $365,000 secured convertible promissory note.

The note, bears interest at 10% per annum, matures on March 15, 2020, and contains standard and customary events of default including but not limited to: (i) failure to make payments when due under the note, and (ii) bankruptcy or insolvency of the Company. Principal and interest on the note will be payable upon maturity. The interest rate increases to 22% in the event of a default under the note.

Beginning six months after the date of issue, St. George shall have the option to redeem all or a portion of the amounts outstanding under the note. At St. George's option, redemption amounts are payable by the Company in the form of (x) cash or (y) conversion of such amounts into shares of the Company's common stock. Conversions into common stock shall be calculated using a variable conversion price equal to 60% of the average of the two lowest closing bid price for the shares over the prior ten day trading period immediately preceding the conversion.

There are no registration rights applicable to the note or its underlying conversion shares. Shares of common stock may not be issued pursuant to the note if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 9.99% of the outstanding shares of the Company's common stock.

The note will be secured by a security interest on the Company's headquarters building in Thornton, Colorado.

Conversions of Secured Promissory Notes (Note 10)

Subsequent to the date of this report, an additional $115,000 in principal for Global was converted into 9,595,327 shares of common stock.

Offering of Promissory Note (Note 11)

On March 11, 2019, the Company issued, to Investor 3, a additional promissory note with a principal balance of $60,000 in exchange for $50,000 in gross proceeds. The note is unsecured, bears interest at 12% per annum, matures on September 11, 2019, and contains standard and customary events of default including but not limited to: (i) failure to make payments when due under the note, and (ii) bankruptcy or insolvency of the Company. Principal and interest on the note will be payable upon maturity.

Exchange of Outstanding Promissory Notes for Unsecured Convertible Notes

On March 11, 2019, the Company, entered into two securities exchange agreements (the “Exchange Agreements”) with BayBridge (Note 12).

Pursuant to the terms of the Exchange Agreements, BayBridge agreed to surrender and exchange two outstanding promissory notes (Note 11) with principal balances of (i) $123,817 (including accrued interest), and (ii) $127,280 (including accrued interest), for two additional unsecured convertible notes with principal amounts of (i) $160,000 and (ii) $150,000. The notes are unsecured, bear interest at 12% per annum, mature on March 11, 2020, and contain standard and customary events of default including but not limited to: (i) failure to make payments when due under the note, and (ii) bankruptcy or insolvency of the Company. Principal and interest on the note will be payable upon maturity.

At any time after inception of the note until fully paid, BayBridge shall have the option to convert all or a portion of amounts outstanding under the note into shares of the Company's common stock. Conversions into common stock shall be calculated using a variable conversion price equal to the lesser of (i) a price equal to $0.003, or (ii) 65% of the lowest closing bid price for the shares over the prior five trading days.

There are no registration rights applicable to the note. Shares of common stock may not be issued pursuant to the note if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 9.99% of the outstanding shares of the Company's common stock.

Offering of Convertible Notes (Note 12)

Widjaja Convertible Note

On January 11, 2019, the Company entered into a note purchase with Jason Widjaja ("Widjaja"), for the private placement of a $330,000 convertible promissory note, in exchange for $330,000 of gross proceeds. The note is unsecured, bears interest at 12% per annum, matures on January 11, 2020, and contains standard and customary events of default including but not limited to: (i) failure to make payments when due under the note, and (ii) bankruptcy or insolvency of the Company. Principal and interest on the note will be payable upon maturity.

At any time after inception of the note until fully paid, Widjaja shall have the option to convert all or a portion of amounts outstanding under the note into shares of the Company's common stock. Conversions into common stock shall be calculated using a variable conversion price equal to 80% of the lowest closing bid price for the shares over the prior five trading days immediately preceding the conversion date.

There are no registration rights applicable to the note. Shares of common stock may not be issued pursuant to the note if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 19.99% of the outstanding shares of the Company's common stock.

Power Up Convertible Notes

On February 14, 2019, the Company entered into an additional note purchase with Power Up, for the private placement of a $54,500 convertible promissory note in exchange for $54,500 of gross proceeds. The note is unsecured, bears interest at 8% per annum, matures on February 14, 2020, and contains standard and customary events of default including but not limited to: (i) failure to make payments when due under the note, and (ii) bankruptcy or insolvency of the Company. Principal and interest on the note will be payable upon maturity. The interest rate increases to 22% in the event of a default under the note.

Beginning in August 2019, Power Up shall have the option to convert all or a portion of the amounts outstanding under the note into shares of the Company's common stock. Conversions into common stock shall be calculated using a variable conversion price equal to 65% of the average of the three lowest closing bid prices for the shares over the prior ten day trading period immediately preceding the conversion.

There are no registration rights applicable to the note. Shares of common stock may not be issued pursuant to the note if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 4.99% of the outstanding shares of the Company's common stock.

On March 7, 2019, the Company entered into an additional note purchase with Power Up, for the private placement of a $54,500 convertible promissory note in exchange for $54,500 of gross proceeds. The note is unsecured, bears interest at 8% per annum, matures on March 7, 2020, and contains standard and customary events of default including but not limited to: (i) failure to make payments when due under the note, and (ii) bankruptcy or insolvency of the Company. Principal and interest on the note will be payable upon maturity. The interest rate increases to 22% in the event of a default under the note.

Beginning in September 2019, Power Up shall have the option to convert all or a portion of the amounts outstanding under the note into shares of the Company's common stock. Conversions into common stock shall be calculated using a variable conversion price equal to 65% of the average of the three lowest closing bid prices for the shares over the prior ten day trading period immediately preceding the conversion.

There are no registration rights applicable to the note. Shares of common stock may not be issued pursuant to the note if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 4.99% of the outstanding shares of the Company's common stock.

GS & EMA Convertible Notes

On February 22, 2019, the Company sold and issued to GS Capital Partners, LLC ("GS") a $108,068 aggregate principal amount unsecured convertible promissory note in exchange for $75,000 of gross proceeds and approximately $27,000 of premium associated with the assignment of the EMA note (see below). The note is unsecured, bears interest at 8% per annum, matures on February 22, 2020, and contains standard and customary events of default including but not limited to: (i) failure to make payments when due under the note, and (ii) bankruptcy or insolvency of the Company. Principal and interest on the note will be payable upon maturity.

At any time after inception of the note until fully paid, GS shall have the option to convert all or a portion of amounts outstanding under the note into shares of the Company's common stock. Conversions into common stock shall be calculated using a variable conversion price equal to 65% of the average of the three lowest closing bid price for the shares over the prior ten day trading period immediately preceding the conversion.

There are no registration rights applicable to the note. Shares of common stock may not be issued pursuant to the note if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 4.99% of the outstanding shares of the Company's common stock.

On February 22, 2019, GS purchased $75,000 in convertible notes, plus accrued interest, from EMA. The terms of the note remain the same. There was a pre-payment penalty associated with this assignment of approximately $27,000, which was included in a new note issued to GS (see above).

Conversions of Convertible Notes (Note 12)

Subsequent to the date of this report, an additional $106,750 in principal for St. George was converted into 58,503,244 shares of common stock.

Subsequent to the date of this report, an additional $222,500 in principal, plus accrued interest, for BayBridge was converted into 61,611,485 shares of common stock.

Subsequent to the date of this report, an additional $65,615 in principal, plus accrued interest, for Bellridge was converted into 47,400,806 shares of common stock.

Subsequent to the date of this report, an additional $182,500 in principal, plus accrued interest, for Power Up was converted into 38,696,339 shares of common stock.

Conversion of Series A Preferred Stock (Note 13)

On January 11, 2019, the holder of Series A Preferred Stock converted 12,656 shares of Series A Preferred Stock, plus $70,527 in accrued dividends, for 9,795,398 shares of common stock.

Sale of Building

On April 12, 2019, the Company entered into an agreement for the sale of its Thornton, Colorado building at a gross sales price of $13 million. The closing of the transaction, which is subject to customary closing conditions, is expected to close in the third quarter of 2019.

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

(Mark One)

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2017

or

☐ TRANSITION REPORT UNDER SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the Transition Period from to

Commission File No. 001-32919

Ascent Solar Technologies, Inc.

(Exact name of registrant as specified in its charter)

Delaware	**20-3672603**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
12300 Grant Street, Thornton, CO	**80241**
(Address of principal executive offices)	**(Zip Code)**

Registrant's telephone number including area code: 720-872-5000

Securities registered pursuant to Section 12(b) of the Act:

Title of Each Class	Name of Each Exchange on Which Registered
Common Stock, $0.0001 par value per share	OTCBB Market

Securities registered pursuant to Section 12(g) of the Act:
None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☐ No ☒

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Exchange Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). ☒ Yes ☐ No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See definitions of “large accelerated filer,” “accelerated filer” and “smaller reporting company” in Rule 12b-2 of the Exchange Act:

Large accelerated filer	☐	Accelerated filer	☐
Non-accelerated filer	☐ (Do not check if a smaller reporting company)	Smaller reporting company	☒
		Emerging growth company	☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

As of June 30, 2017, the last business day of the registrant’s most recently completed second fiscal quarter, the aggregate market value of the registrant’s common stock held by non-affiliates was approximately $2.9 million based upon the last reported sale price of the registrant’s common stock on that date as reported by OTCBB Market, operated by OTC Markets Group Inc.

As of March 26, 2018, there were 12,738,084,718 shares of our common stock issued and outstanding.

ASCENT SOLAR TECHNOLOGIES, INC.
Form 10-K Annual Report
for the Fiscal Year ended December 31, 2017
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FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K includes "forward-looking statements" that involve risks and uncertainties. Forward-looking statements include statements concerning our plans, objectives, goals, strategies, future events, future net sales or performance, capital expenditures, financing needs, plans or intentions relating to acquisitions, business trends and other information that is not historical information and, in particular, appear under headings including "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Business." When used in this Annual Report, the words "estimates," "expects," "anticipates," "projects," "plans," "intends," "believes," "forecasts," "foresees," "likely," "may," "should," "goal," "target," and variations of such words or similar expressions are intended to identify forward-looking statements. All forward-looking statements are based upon information available to us on the date of this Annual Report.

These forward-looking statements are subject to risks, uncertainties and other factors, many of which are outside of our control, that could cause actual results to differ materially from the results discussed in the forward-looking statements, including, among other things, the matters discussed in this Annual Report in the sections captioned "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations." Factors you should consider that could cause these differences are:

- Our limited operating history and lack of profitability;
- Our ability to develop demand for, and sales of, our products;
- Our ability to attract and retain qualified personnel to implement our business plan and corporate growth strategies;
- Our ability to develop sales, marketing and distribution capabilities;
- Our ability to successfully develop and maintain strategic relationships with key partners, including OEMs, system integrators, distributors, retailers and e-commerce companies, who deal directly with end users in our target markets;
- The accuracy of our estimates and projections;
- Our ability to secure additional financing to fund our short-term and long-term financial needs;
- Our ability to maintain the listing of our common stock on the OTCBB Market;
- The commencement, or outcome, of legal proceedings against us, or by us, including ongoing ligation proceedings;
- Changes in our business plan or corporate strategies;
- The extent to which we are able to manage the growth of our operations effectively, both domestically and abroad, whether directly owned or indirectly through licenses;
- The supply, availability and price of equipment, components and raw materials, including the elements needed to produce our photovoltaic modules;
- Our ability to expand and protect the intellectual property portfolio that relates to our consumer electronics, photovoltaic modules and processes;
- Our ability to implement remediation measures to address material weaknesses in internal control;
-

General economic and business conditions, and in particular, conditions specific to consumer electronics and the solar power industry; and

- Other risks and uncertainties discussed in greater detail in the section captioned "Risk Factors."

There may be other factors that could cause our actual results to differ materially from the results referred to in the forward-looking statements. We undertake no obligation to publicly update or revise forward-looking statements to reflect subsequent events or circumstances after the date made, or to reflect the occurrence of unanticipated events, except as required by law.

References to "we," "us," "our," "Ascent," "Ascent Solar" or the "Company" in this Annual Report mean Ascent Solar Technologies, Inc.

PART I

Item 1. Business

Business Overview

Ascent Solar was formed in October 2005 as a development stage company to commercialize flexible photovoltaic ("PV") modules using our proprietary thin film technology. The technology was initially developed at ITN Energy Systems, Inc. ("ITN") beginning in 1994 and subsequently assigned and licensed to us. Our proprietary manufacturing process deposits multiple layers of materials, including a thin film of highly efficient copper-indium-gallium-diselenide ("CIGS") semiconductor material, on a flexible, lightweight, high tech plastic substrate using a roll-to-roll manufacturing process followed by laser patterning the layers to create interconnected PV cells, or PV modules, in a process known as monolithic integration. We believe that our technology and manufacturing process, which results in a much lighter, flexible yet durable module package, provides us with unique market opportunities relative to both the crystalline silicon ("c-Si") based PV manufacturers that currently lead the PV market, as well as other thin film PV manufacturers that use substrate materials such as glass, stainless steel or other metals that can be heavier and more rigid than plastics.

We believe that the use of CIGS on a flexible, durable, lightweight, high tech plastic substrate will allow for unique and seamless integration of our PV modules into a variety of electronic products, defense, transportation and aerospace applications, as well as other products and applications that may emerge. For markets that place a high premium on weight, such as consumer electronics, defense, space, near space, and aeronautic markets, we believe our materials provide attractive increases in power-to-weight ratio, and that our materials have higher power-to-area ratios and voltage-to-area ratios than competing flexible PV thin film technologies. These metrics will be critical as we position ourselves to compete in challenging high value markets such as aerospace where Ascent Solar products can be integrated into satellites, near earth orbiting vehicles, and fixed-wing unmanned aerial vehicles ("UAV").

Product History

In March 2008, we demonstrated initial operating capacity of our first production line by beginning production trials as an end to end integrated process. Initial operating capacity production trials resulted in average thin film device efficiencies of 9.5% and small area monolithically integrated module efficiencies of over 7.0%. During 2008, optimization trials resulted in thin film device efficiencies in the 9.5% to 11.5% range and corresponding module efficiencies in the 7.0% to 9.0% range. The test modules measured approximately 15 centimeters wide by 30 centimeters long. During the first quarter of 2009, we began limited production of monolithically integrated flexible CIGS modules in our initial production line. Our primary business model, at that time, was based upon mass production of solar modules of varying lengths, sizes and configurations. We provided sample modules to potential customers and development partners in various industries to explore integration of our products into new applications.

In July 2009, we obtained independent verification by the U.S. Department of Energy's National Renewable Energy Laboratory ("NREL") that our modules measured 10.4% in conversion efficiency. The modules tested at NREL were approximately 15 centimeters wide by 30 centimeters long. In October 2009, NREL further verified our achievement of a manufacturing milestone of 14.0% cell efficiency as well as a peak efficiency of 11.4% for CIGS modules. Later, in December 2010, we achieved 12.1% module efficiency on the same form factor. In October 2010, we completed internal qualification testing of a flexible packaging solution which successfully passed the rigorous standard of one thousand (1,000) hours of damp heat testing (85% relative humidity and 85° C temperature) guideline set forth by International Electrotechnical Commission ("IEC") 61646 standards for performance and long term reliability of thin film solar modules.

In February 2010, three of our product configurations were certified by an independent laboratory on a variety of U.S. Department of Defense ("DOD") rugged standards known as MIL-STD-810G. In October 2010, we completed full external certification under IEC 61646 at an independent laboratory of a two meter module. Achieving this certification is required for building integrated photovoltaic ("BIPV") and building applied photovoltaic ("BAPV") applications used in commercial, industrial and residential rooftop markets. Certification activities will continue as required as we introduce new products and make changes or improvements to our already certified products.

In 2010, we received an award from R&D Magazine and were included in their list of the 100 Most Innovative Technologies based on our process of monolithic integration on polyimide substrate. In 2011, Time Magazine selected us as one of the 50 Best Inventions of the year. In 2015 Ascent Solar won its second R&D 100 Award. The 2015 award was given for the development of the MilPak platform, a military-grade (MIL-STD-810G tested) and fully integrated solar power generation and storage unit incorporated with a Maximum Peak Power Tracking (MPPT) management system. The MilPak platform is one of the most rugged, yet lightweight, power generation and storage solutions available, both attributes enabled by the use of Ascent's CIGS technology.

In 2012, we evolved our business model to include B2C, solution based, PV integrated consumer electronics to our off grid high value solar power generation strategy. In June of 2012, we launched our new line of consumer products under the EnerPlex™ brand, and introduced our first product, the Surfr™; a battery and solar case for the Apple® iPhone® 4/4S smart phone featuring our ultra-light CIGS thin film technology integrated directly into the case. The case incorporates our ultra-light and thin PV module into a sleek, protective iPhone 4/4S case, along with a thin, life extending, lithium-polymer battery. The case adds minimal weight and size to an iPhone smartphone, yet provides supplemental charging when needed. In August of 2012, we announced the launch of the second version of the Surfr for the Samsung® Galaxy S® III, which provides 85% additional battery life.

In December 2012, we launched the EnerPlex Kickr™ and EnerPlex Jumpr™ product series. The Kickr IV is an extremely portable, compact and durable solar charging device, approximately seven inches by seven inches when folded, and weighs less than half a pound. The Kickr IV provides 6.5 watts of regulated power that can help charge phones, digital cameras, and other small USB enabled devices. The Kickr IV is ideal for outdoor activities such as camping, hiking and mountain climbing as well as daily city use. To complement the Kickr IV, we also released the Jumpr series of portable power banks in December of 2012. The Jumpr series provides a compact power storage solution for those who need to recharge their portable electronics while on the go.

During 2013, the EnerPlex brand rapidly expanded with the addition of two new product series as well as over fifteen new products. In 2013, we introduced further additions to the Jumpr line of portable power banks; releasing the Jumpr Mini and Jumpr Stack in August and the Jumpr Max in September. The latest additions to the Kickr line of portable solar chargers, the Kickr I and Kickr II, were introduced in August at the Outdoor Retailer show. In October 2013, we released our first series of solar integrated backpacks, the EnerPlex Packr™. The Packr is a functional backpack ideal for charging mobile electronic devices while on the go. Also in October of 2013, we introduced the Surfr battery and solar case for the Samsung Galaxy S® 4, and in December 2013, we introduced the Surfr battery and solar case for Apple's iPhone® 5. To complement our flagship product lines, we added an assortment of accessories, all of which can be integrated into the EnerPlex ecosystem of products; the LED wand, which can be easily plugged into a Jumpr power bank to provide hours of light, or the Travel Adaptor, which enables consumers to charge up their Jumpr power banks from a traditional outlet anywhere in the world.

Beginning in 2013, we aggressively pursued new distribution channels for the EnerPlex brand; these activities led to placement in a variety of high-traffic ecommerce venues such as www.amazon.com, www.walmart.com, www.brookstone.com, www.newegg.com, as well as many others including our own e-commerce platform at www.goenerplex.com. The April 2013 placement of EnerPlex products at Fry's Electronics, a US West Coast consumer electronics retailer, represented the company's first domestic retail presence; EnerPlex products were carried in all of Fry's 34 superstores across 9 states.

Throughout 2014, EnerPlex released multiple additions to the Jumpr line of products: including the Jumpr Stack 3, 6 and 9; innovative batteries equipped with tethered micro-USB and Apple Lightning cables with a revolutionary Stack and Charge design, enabling batteries to be charged simultaneously when they are placed on top of one another. Also released in 2014 were the Jumpr Slate series, products which push the boundaries of how thin batteries can be; the Jumpr Slate 10k, at less than 7mm thick was the thinnest lithium polymer battery available when it was released. The Jumpr Slate 5k and 5k Lightning each come with a tethered micro-USB and Lightning cable respectively; freeing consumers from worrying about toting extra cables with them while on the move.

At Outdoor Retailer 2014, EnerPlex debuted the Generatr Series. The Generatr 1200 and Generatr 100 are lithium-ion based, large format batteries. Lighter and smaller than competitors, the Generatr Series are targeted for consumers who require high-capacity, high-output batteries which remain ultra-portable. Also debuted at Outdoor Retailer was the Commandr 20, a high output solar charger designed specifically to integrate with and charge the Generatr series, allowing consumers to stay out longer without needing to charge their Generatr batteries from a traditional power source. In August 2014, the Kickr II+ and IV+ were also announced, these products represent another evolution in EnerPlex's line of solar products; integrated with a 500mAh battery the Kickr II+ and IV+ are able to provide a constant flow of power even when there are intermittent disruptions in sunlight.

During 2015, we reached an agreement with EVINE Live, one of the premier home shopping networks with TV programming that reaches over 87 million US homes to begin selling EnerPlex products during their broadcasts. EnerPlex launched the Generatr S100 and select other products exclusively with EVINE, EnerPlex also launched the Generatr 1200 launched exclusively with EVINE for a limited period. Also during 2015, EnerPlex expanded its relationship with The Cellular Connection to include over 450 Verizon Wireless Premium Retail Stores; launched its products with two world recognized retailers; The Sports Authority and Cabela's; and launched its products with GovX; the premier online shopping destination for Military, Law Enforcement and Government agencies. Internationally, EnerPlex products became available in the United Kingdom via the brand's launch with 172 Maplin's stores throughout the country.

In 2016, EnerPlex launched the new emergency sales vertical, partnering with Emergency Preparedness eCommerce leader, Emergency Essentials, and we announced new breakthroughs in the Company's line of high-voltage solar products, designed specifically for high-altitude and space markets. Also during the first quarter of 2016, the Company announced the launch of select products on the GSA Advantage website; allowing Federal employees, including members of all branches of the US Military, to directly purchase Ascent and EnerPlex products including: the MilPak E, Commandr 20, Kickr 4 and WaveSol solar modules.

In January 2017, Ascent was awarded a contract to supply high-voltage SuperLight thin-film CIGS PV blankets. These 50W, fully laminated, flexible blankets were manufactured using a new process that was optimized for high performance in near-space conditions at elevated temperatures, and are custom designed for easy modular integration into series and parallel configurations to achieve the desired voltage and current required for such application.

In February 2017 Ascent announced the discontinuation of our EnerPlex consumer business by disposing of the EnerPlex brand, and related intellectual properties and trademarks, to our battery product supplier, Sun Pleasure Co. Limited ("SPCL"). This transaction was completed in an effort to better allocate our resources and to continue to focus on our core strength in the high-value specialty PV market. Following the transfer, Ascent will no longer be producing or selling Enerplex-branded consumer products. Ascent will focus on its photovoltaic business and will supply solar PV products to SPCL, supporting the continuous growth of EnerPlex™ with Ascent's proprietary and award-winning thin-film solar technologies and products.

During the third quarter of 2017, Ascent Solar was selected by Energizer to develop and supply solar panels for their PowerKeep line of solar products, and in November 2017, Ascent introduced the next generation of our USB-based portable power systems with the XD™ series. The first product introduced was the XD-12 which, like previous products, is a folding, lightweight, easily stowable, PV system with USB power regulation. Unique to this generation of PV portable power is more PV power (12 Watts) and a 2.0 Amp smart USB output to enable the XD-12 to charge most smartphones, tablets, and USB-enabled devices as fast as a wall outlet. The enhanced smart USB circuit determines the maximum power the device is able to receive, and ensures the best possible charging performance directly from the sun.

Also in 2017, for a space customer, Ascent manufactured a new micro-module, approximately 12.8mm x 50mm (0.5in x 2.0in) in size that is ideal for both laboratory-scale environmental testing, and for subsequent integration into flight experiments.

In February 2018, the Company introduced the second product in our XD™ series. Delivering up to 48 Watts of solar power, the durable and compact Ascent XD-48 Solar Charger is the ideal solution for charging many portable electronics and off-grid power systems. The XD-48's versatility allows it to charge both military and consumer electronics directly from the sun wherever needed. Like the XD-12, the XD-48 has a compact and portable design, and its rugged, weather-resistant construction withstands shocks, drops, damage and even minor punctures to power through the harshest conditions.

We continue to design and manufacture PV integrated consumer electronics as well as portable power applications for commercial and military users. Due to the high durability enabled by the monolithic integration employed by our technology, the capability to customize modules into different form factors and the industry leading light weight and flexibility provided by our modules, we believe that the potential applications for our products are numerous.

Commercialization and Manufacturing Strategy

We manufacture our products by affixing a thin CIGS layer to a flexible, plastic substrate using a large format, roll-to-roll process that permits us to fabricate our flexible PV modules in an integrated sequential operation. We use proprietary monolithic integration techniques which enable us to form complete PV modules with little to no costly back end assembly of inter cell connections. Traditional PV manufacturers assemble PV modules by bonding or soldering discrete PV cells together. This manufacturing step typically increases manufacturing costs and at times proves detrimental to the overall yield and reliability of the finished product. By reducing or eliminating this added step using our proprietary monolithic integration techniques, we believe we can achieve cost savings in, and increase the reliability of, our PV modules. All tooling necessary for us to meet our near term production requirements is installed in our Thornton, Colorado plant. In 2012, we further revised our strategy to focus on applications for emerging and high-value specialty PV markets, including off grid, aerospace, military and defense and consumer oriented products.

On February 2, 2012, we announced the appointment of Victor Lee as President and Chief Executive Officer. Mr. Lee has served on our Board since November 2011. Mr. Lee is the Managing Director of Tertius Financial Group Pte Ltd ("TFG"), which at the time was the largest shareholder of Ascent Solar. TFG held approximately 3% of the total outstanding shares as of December 31, 2017.

Currently, we are producing OEM and consumer oriented products focusing on charging devices powered by our solar modules. Products in these markets are priced based on the overall value proposition rather than a commodity-style price per watt basis. We continue to develop new consumer products and we have adjusted our utilization of our equipment to meet our near term forecast sales. We plan to continue the development of our current PV technology to increase module efficiency, improve our manufacturing tooling and process capabilities and reduce manufacturing costs. We also plan to continue to take advantage of research and development contracts to fund a portion of this development.

Advantages of CIGS on a Flexible Plastic Substrate

Thin film PV solutions differ based on the type of semiconductor material chosen to act as a sunlight absorbing layer, and also on the type of substrate on which the sunlight absorbing layer is affixed. To the best of our knowledge, we believe we are the only company in the world currently focused on commercial scale production of PV modules using CIGS on a flexible, plastic substrate with monolithic integration. We utilize CIGS as a semiconductor material because, at the laboratory level, it has a higher demonstrated cell conversion efficiency than amorphous silicon (“a-Si”) and cadmium telluride (“CdTe”). We also believe CIGS offers other compelling advantages over both a-Si and CdTe, including:

- *CIGS versus a-Si:* Although a-Si, like CIGS, can be deposited on a flexible substrate, its conversion efficiency, which already is generally much lower than that of CIGS, measurably degrades when it is exposed to ultraviolet light, including natural sunlight. To mitigate such degradation, manufacturers of a-Si solar cells are required to implement measures that add cost and complexity to their manufacturing processes.

- *CIGS versus CdTe:* Although CdTe modules have achieved conversion efficiencies that are generally comparable to CIGS in production, we believe CdTe has never been successfully applied to a flexible substrate on a commercial scale. We believe the use of CdTe on a rigid, transparent substrate, such as glass, makes CdTe unsuitable for a number of the applications. We also believe CIGS can achieve higher conversion efficiencies than CdTe in production.

Our choice of substrate material further differentiates us from other thin film PV manufacturers. We believe the use of a flexible, lightweight, insulating substrate that is easier to install provides clear advantages for our target markets, especially where rigid substrates are unsuitable. We also believe our use of a flexible, plastic substrate provides us significant cost advantages because it enables us to employ monolithic integration techniques on larger components, which we believe are unavailable to manufacturers who use flexible, metal substrates. Accordingly, we are able to significantly reduce part count, thereby reducing the need for costly back end assembly of inter cell connections. As the only company, to our knowledge, focused on the commercial production of PV modules using CIGS on a flexible, plastic substrate with monolithic integration, we believe we have the opportunity to address the consumer electronics, defense, aerospace, transportation, off grid, portable power and other weight-sensitive markets with transformational high quality, value added product applications. It is these same unique features and our overall manufacturing process that enables us to produce consumer products that enables our consumer products to be extremely robust, light and flexible.

Competitive Strengths

We believe we possess a number of competitive strengths that provide us with an advantage over our competitors.

- ***We are a pioneer in CIGS technology with a proprietary, flexible, lightweight, high efficiency PV thin film product that positions us to penetrate a wide range of attractive high value added markets such as consumer products, off grid, portable power, transportation, defense, aerial, and other markets.*** By applying CIGS to a flexible plastic substrate, we have developed a PV module that is efficient, lightweight and flexible; with the highest power-to-weight ratio in at-scale commercially available solar. The market for electronic components, such as electronic packages, casings and accessories, as well as defense portable power systems, transportation integrated applications and space and near-space solar power application solutions represent a significant premium market for the company. Relative to our thin film competitors, we believe our advantage in thin film CIGS on plastic technology provides us with a superior product offering for these strategic market segments.

- ***We have the ability to manufacture PV modules for different markets and for customized applications without altering our production processes.*** Our ability to produce PV modules in customized shapes and sizes, or in a variety of shapes and sizes simultaneously, without interrupting production flow, provides us with flexibility in addressing target markets and product applications, and allows us to respond quickly to changing market conditions. Many of our competitors are limited by their technology and/or their manufacturing processes to a more restricted set of product opportunities.

- ***Our integrated, roll-to-roll manufacturing process and proprietary monolithic integration techniques provide us a potential cost advantage over our competitors.*** Historically, manufacturers have formed PV modules by manufacturing individual solar cells and then interconnecting them. Our large format, roll-to-roll manufacturing process allows for integrated continuous production. In addition, our proprietary monolithic integration techniques allow us to utilize laser patterning to create interconnects, thereby creating PV modules at the same time we create PV cells. In so doing, we are able to reduce or eliminate an entire back end processing step, saving time as well as labor and manufacturing costs relative to our competitors.

- ***Our lightweight, powerful, and durable solar panels provide a performance advantage over our competitors.*** For consumer applications where a premium is placed on the weight and profile of the product, our ability to integrate our PV modules into portable packages and cases offers the customer a lightweight and durable solution for all their portable electronics.

- ***Our proven research and development capabilities position us to continue the development of next generation PV modules and technologies.*** Our ability to produce CIGS based PV modules on a flexible plastic substrate is the result of a concerted research and development effort that began more than twenty years ago. We continue to pursue research and development in an effort to drive efficiency improvements in our current PV modules and to work toward next generation technologies and additional applications.

- ***Our manufacturing process can be differentiated into two distinct functions; a front end module manufacturing process and a back end packaging process.*** Our ability to produce finished unpackaged rolls of CIGS material for shipment worldwide to customers for encapsulation and integration into various products enhances our ability to work with partners internationally and domestically.

Markets and Marketing Strategy

In 2012, we modified our strategic focus away from large scale utility projects and rooftop applications to consumer products and high-value specialty solar markets. This new strategy enables us to fully leverage the unique advantages of our technology including flexibility, durability and attractive power to weight and power to area performance. It furthermore enables us to offer unique, differentiated solutions in large markets with less competition, and more attractive pricing. In the second half of 2012, we launched our EnerPlex line of personal power, portable solar solutions and accessories. This represented a significant paradigm shift for us and moved us into the realm of supplying complete consumer product solutions as opposed to strictly commercial solar modules. We also remain focused on specialty solar applications which can fully leverage the unique properties of our award winning CIGS technology. These include aerospace, defense, emergency management and consumer/OEM applications.

In February 2017 Ascent announced the discontinuation of our EnerPlex consumer business by disposing of the EnerPlex brand, and related intellectual properties and trademarks, to our battery product supplier, in an effort to better allocate its resources and to continue to focus on its core strength in the high-value specialty PV market. Ascent is no longer producing or selling Enerplex-branded consumer products and is focusing on its photovoltaic business. Ascent will continue to supply solar PV products for the EnerPlex™ products, thereby supporting their continued growth with Ascent's proprietary and award-winning thin-film solar technologies and products.

Ascent's strategic marketing efforts in 2018 will be focused on commercializing our proprietary solar technology in four high-value PV verticals:

I. Public Sector: Defense and Emergency Management
II. Aerospace: Space and Fixed Wing UAV
III. Commercial Off-grid
IV. Consumer and OEM

Each of these strategic verticals include customer segments that place a high value on lightweight, high performance and durable portable power solutions. The value proposition of Ascent's proprietary solar technology not only aligns with the needs of customers in these verticals, but also overcomes many of the obstacles other solar technologies face in these unique markets. Ascent has the capability to design and develop finished products for end users in these areas as well as collaborate with strategic partners to design and develop custom integrated solutions for products like fixed-wing UAVs. Ascent sees significant overlap in the needs of end users across some of these verticals and can achieve economies of scale in sourcing, development, and production in commercializing products for these customers.

The integration of Ascent's solar modules into space, near space, and aeronautic vehicles with ultra-lightweight and flexible solar modules is an important market opportunity for the Company. Customers in this market have historically required a high level of durability, high voltage and conversion efficiency from solar module suppliers, and we believe our products are well suited to compete in this premium market. In May 2014, together with our partners, Silent Falcon UAS Technologies and Bye Aerospace, we announced the successful first flight of a production version of the Silent Falcon™ Unmanned Aircraft Systems, powered by Ascent's ultra-lightweight, flexible PV modules. In July 2014, our ultra-lightweight, flexible PV modules were selected by Vanguard Space Technologies for their NASA Small Business Innovative Research program. The NASA program is intended to develop an economical, lightweight alternative to existing and emerging high-cost solar arrays for high-power space applications. We expect opportunities in this segment to develop rapidly due to customers' extensive development, testing and evaluation processes.

In March 2016, the Company announced a major breakthrough of our high-voltage superlight modules, achieving a power-to-weight ratio of 1,700 watts per kilogram at AM0 environment. In December 2016, Ascent was selected by the Japan Aerospace Exploration Agency ("JAXA") as part of their next round of evaluations for providing solar technology for an upcoming mission to Jupiter, as well as to address additional missions. This decision followed an earlier round of investigation with promising results, during which the Company's flexible, monolithically integrated CIGS solar module was subjected to environmental extremes, and continued to operate well. During the first phase of JAXA's evaluation, Ascent's PV was successfully tested below -146°C (-231°F) and up to +190°C (+374 °F), and to only 4% of the sunlight generally received in earth's orbit. In addition, JAXA has subjected Ascent's PV to radiation and mechanical testing.

In 2017 we continued to solidify our position in the space and near-space markets; these challenging requirements and environments allow for the full utilization of the unique nature and advantages of our lightweight, flexible monolithically-integrated CIGS PV. Through continued work in the PV-powered drone field, Ascent made significant strides in providing PV power to high-altitude airships and next-generation space applications.

In January 2017, Ascent was awarded a contract to supply high-voltage SuperLight thin-film CIGS PV blankets. These 50W, fully laminated, flexible blankets were manufactured using a new process that was optimized for high performance in near-space conditions at elevated temperatures, and are custom designed for easy modular integration into series and parallel configurations to achieve the desired voltage and current required for such application.

In November 2017, Ascent fulfilled a third order from JAXA for custom PV products designed specifically for their upcoming solar sail deployment demonstration project. This project was comprised of small area test cells and large, 19.5cm x 30cm monolithically-integrated modules, all on a very thin, 25-micron (0.001 inch) plastic substrate which is half the thickness of Ascent's production substrate for a standard product. In space, near-space, and drone applications, the PV substrate accounts for a significant portion of the product's overall mass; the PV construction on the new 25-micron substrates represents a major breakthrough for these markets. JAXA placed this order after achieving the desired experimental results from the previous shipments and subsequent electrical, mechanical and environmental testing. The 19.5cm x 30cm module is a custom design to match the anticipated deployment mechanism and PV layout for the final Jovian spacecraft.

Also in 2017, Ascent fulfilled a new order, with another repeat space customer, to manufacture a new micro-module, approximately 12.8mm x 50mm (0.5in x 2.0in) in size that is ideal for both laboratory-scale environmental testing, and for subsequent integration into flight experiments.

In 2015 Ascent Solar won its second R&D 100 Award, the 2015 award was given for the development of the MilPak platform, a military-grade solar power generation and storage unit. The MilPak platform is one of the most rugged, yet lightweight, power generation and storage solutions available, both attributes enabled by the use of Ascent's CIGS technology.

The military market has a unique set of requirements we believe are well suited to our products. When integrated with fabric to form re-deployable arrays, our highly efficient, rugged, lightweight modules may allow soldiers to minimize battery loads, reduce the use of conventional fuels, and increase safety through the streamlining of fuel transport operations. We are also working to expand our foldable line of outdoor solar chargers, such as the XD-12 and the XD-48, which are well suited for the individual soldier or for the bigger power needs of a platoon with the ability of several chargers to be strung together. Our modules can also provide a reliable source of renewable power in remote areas, regardless of local infrastructure. We will continue to reach the military market through partnerships with top systems providers, by providing Government Service Administration Letters of Supply, and through direct sales and other blanket purchase agreements with the government.

Transportation integrated PV, or integration of our flexible solar modules with vehicles such as commercial trucks, buses, trains and passenger cars, is another market segment that represents a significant opportunity. Due to their flexible form and durable, lightweight properties, our modules can be fitted to the exterior of various vehicles to provide supplemental power without significantly affecting the aerodynamics, weight or aesthetics of the vehicle. We are currently working with multiple integrators and OEMs to develop effective value added solutions for this market.

During the third quarter of 2017, Ascent Solar demonstrated its breadth of capabilities at the US Special Operations Command ("SOCOM") exclusive Technical Experimentation ("TE") 17-3 Event in Washington, DC. SOCOM is tasked, by the Department of Defense ("DoD"), with providing Special Operations Forces ("SOF") with the latest war fighting technology available; in support of this effort, SOCOM sponsors an annual TE event. In July of 2017 SOCOM requested the participation of companies who have proficiency in the areas of Satellite Communication ("SATCOM") and Unattended Ground Sensors ("UGS") for a TE event. Over 30 companies were selected to participate, and Ascent Solar was one of only 2 companies selected to participate who didn't actually make SATCOM or UGS products. Ascent Solar was selected on the basis and recognition that one of the primary issues facing the DoD today is the ability to power all of their war fighting technology. Ascent's diverse line-up of rugged and lightweight portable solar products offers the potential for the DoD to generate unattended ongoing power, which could save lives and increase the efficiency of the war fighting effort. Ascent was honored to be chosen to participate, and the assessed score we received is indicative of a capability that has "high potential for SOF use with few limitations".

We continue to supply our strategic partners with PV modules to support their development, testing and certification of new integrated PV products, including product testing by several branches of the U.S. military. We believe that our high power density flexible solar modules enable new applications for solar power. By creating mutually beneficial partnerships and strategically penetrating the markets discussed above, we plan to transform the landscape of solar power generation with truly innovative end products.

Competition

We have shifted our strategic focus away from large scale utility projects of the traditional solar markets. We believe our thin film, monolithically integrated CIGS technology enables us to deliver sleek, lightweight, rugged, high performance solutions to serve these markets as competitors from other thin film and c-Si companies emerge. The landscape of thin film manufacturers encompasses a broad mix of technology platforms at various stages of development, and consists of a number of medium and small companies.

The market for traditional, grid connected PV products is dominated by large manufacturers of c-Si technology, although thin film technology on glass has begun to emerge among the major players. We anticipate that while these large manufacturers may continue to dominate the market with their silicon based products, thin film manufacturers will likely capture an increasingly larger share of the market, as is evident from the success of First Solar (CdTe) and Solar Frontier (CIGS), both among the top 20 producers worldwide. In 2016, crystalline silicon PV technology represented over 90% of global market revenue and 93% of global production, with the balance captured by thin film. Approximately half of thin film production is CdTe production, with the other half being split between CIGS and a-Si.

We believe that our modules offer unique advantages. Their flexibility, low areal density (mass per unit area), and high specific power (power per unit mass) enable use on weight-sensitive applications, such as portable power, conformal aircraft surfaces, high altitude long endurance (HALE) fixed wing and lighter than air (LTA) vehicles, and space applications that are unsuitable for glass-based modules. Innovative product design, customer focused development , and our rapid prototyping capability yield modules that could be integrated into virtually any product to create a source of renewable energy. Whether compared to glass based or other flexible modules, our products offer competitive advantages making them unique in comparison to competing products.

We define the consumer and portable power space as comprising solar powered solutions in the sub-single watt range (i.e. solar power for remote sensors) all the way up to the several hundred watts of power range (i.e. outdoor solar chargers for camping, military or outdoor work). Competitors in the consumer products space include companies that design and distribute solar charging solutions but outsource manufacturing. These include Goal Zero, Voltaic, A-Solar, Solio, PowerTraveller, Solar Components, and RDK Products. Mono or polycrystalline silicon solar technologies are common in these products. Other competitors in this segment include thin-film solar manufacturers who provide a complete product under their company name or brand. These companies include P3 solar, PowerFilm, Trony, and more recently Alta Devices. We believe our differentiated technology lends itself to delivering competitive solutions in the emerging market for personal and portable solar and non-solar charging solutions.

Research and Development and Intellectual Property

We intend to continue to invest in research and development in order to provide near term improvements to our manufacturing process and products, as well as to identify next generation technologies relevant to both our existing and potential new markets. During 2017 and 2016 we incurred approximately $4.8 million and $6.6 million respectively, in research and development costs, which include research and development incurred in relation to our government contracts, as well as manufacturing costs incurred while developing our product lines and manufacturing process.

Our technology was initially developed at ITN beginning in 1994. In early 2006, ITN assigned to us certain CIGS PV-specific technologies, and granted to us a perpetual, exclusive, royalty free, worldwide license to use these technologies in connection with the manufacture, development, marketing and commercialization of CIGS PV to produce solar power. In addition, certain of ITN's existing and future proprietary process and control technologies, although nonspecific to CIGS PV, were assigned to us. ITN retained the right to conduct research and development activities in connection with PV materials, and we agreed to grant a license back to ITN for improvements to the licensed technologies and intellectual property outside of the CIGS PV field.

We protect our intellectual property through a combination of trade secrets and patent protections. We own the following patents and published patent applications:

Issued Patents and Registrations

1. US Patent No. 7,271,333 entitled "Apparatus and Method of Production of Thin-Film Photovoltaic Modules" (issued September 18, 2007)
2. US Patent No. 7,812,247 entitled "Flexible Photovoltaic Array With Integrated Wiring And Control Circuitry, And Associated Methods" (issued October 12, 2010; (co-owned with PermaCity Corporation)
3. US Patent No. 8,021,905 entitled "Machine and Process for Sequential Multi-Sublayer Deposition of Copper Indium Gallium Diselenide Compound Semiconductors" (issued September 20, 2011)
4. US Patent No. 8,124,870 entitled "Systems and Processes for Bifacial Collection and Tandem Junctions Using a Thin film Photovoltaic Device" (issued February 28, 2012)
5. US Patent No. 8,207,442 entitled "Reinforcing Structures for Thin film Photovoltaic Device Substrates, and Associated Methods" (issued June 26, 2012)
6. US Patent No. 8,426,725 entitled "Apparatus and Method for Hybrid Photovoltaic Device Having Multiple, Stacked, Heterogeneous, Semiconductor Junctions" (issued April 23, 2013)
7. US Patent No. 8,465,589 entitled "Machine and Process for Sequential Multi-Sublayer Deposition of Copper Indium Gallium Diselenide Compound Semiconductors" (issued June 18, 2013)
8. US Patent No. D697,502 entitled "Mobile Electronic Device Case" (issued January 14, 2014)
9. US Patent No. 8,648,253 entitled "Machine and Process for Continuous, Sequential, Deposition of Semiconductor Solar Absorbers Having Variable Semiconductor Composition Deposited in Multiple Sublayers" (issued February 11, 2014)
10. US Patent No. 8,716,591 entitled "Array of Monolithically Integrated Thin Film PhotoVoltaic Cells and Associated Methods" (issued May 6, 2014)
11. ECD No. 001429773-0001 entitled "Mobile Handheld Electronic Device Case" (issued February 6, 2015)
12. ECD No. 001429773-0002 entitled "Mobile Handheld Electronic Device Case" (issued February 6, 2015)
13. ECD No. 001429773-0003 entitled "Mobile Handheld Electronic Device Case" (issued February 6, 2015)
14. ECD No. 001429773-0004 entitled "Mobile Handheld Electronic Device Case" (issued February 6, 2015)

15. ECD No. 001429773-0005 entitled “Mobile Handheld Electronic Device Case” (issued February 6, 2015)

16. ECD No. 001429773-0006 entitled “Mobile Handheld Electronic Device Case” (issued February 6, 2015)

17. ECD No. 001429773-0007 entitled “Mobile Handheld Electronic Device Case” (issued February 6, 2015)

18. ECD No. 002732123-0001 entitled “Portable Battery Charging Device” (issued July 7, 2015)

19. ECD No. 002732123-0002 entitled “Portable Battery Charging Device” (issued July 7, 2015)

20. ECD No. 002732123-0003 entitled “Portable Battery Charging Device” (issued July 7, 2015)

21. ECD No. 002735159-0001 entitled “Portable Energy Storage And Distribution Device” (issued July 10, 2015)

22. ECD No. 002735159-0002 entitled “Portable Energy Storage And Distribution Device” (issued July 10, 2015)

23. ECD No. 002735159-0003 entitled “Portable Energy Storage And Distribution Device” (issued July 10, 2015)

24. ECD No. 002735159-0004 entitled “Portable Energy Storage And Distribution Device” (issued July 10, 2015)

25. US Patent 9,147,783 entitled “Apparatus and Method for Hybrid Photovoltaic Device Having Multiple, Stacked, Heterogeneous, Semiconductor Junctions” (issued September 29, 2015)

26. KR Patent No. 30. 0860220 entitled “Apparatus and Method for Hybrid Photovoltaic Device Having Multiple, Stacked, Heterogeneous, Semiconductor Junctions” (issued October 13, 2015)

27. KR Patent 10-1561453 entitled “Apparatus and Method for Hybrid Photovoltaic Device Having Multiple, Stacked, Heterogeneous, Semiconductor Junctions” (issued October 13, 2015)

28. US Patent No. 9,209,322 entitled “Multilayer Thin-Film Back Contact System For Flexible Photovoltaic Devices On Polymer Substrates” (issued December 8, 2015)

29. US Patent No. 9,219,179 entitled “Multilayer Thin-Film Back Contact System For Flexible Photovoltaic Devices On Polymer Substrates” (issued December 22, 2015)

30. CN Patent No. ZL 201530237203.8 entitled “Photovoltaic-Based Fully Integrated Portable Power System” (issued February 10, 2016)

31. TW Patent No. I526630 entitled “Subtractive Hinge and Associated Methods” (issued March 21, 2016)

32. US Patent No. 9,349,905 entitled “Hybrid Multi-Junction Photovoltaic Cells And Associated Methods” (issued May 24, 2016)

33. TW Patent No. I536592 entitled “Photovoltaic Assembly and Associated Methods” (issued June 1, 2016)

34. KR Patent No. 30-0860220 entitled “Photovoltaic-Based Fully Integrated Portable Equipment For Control of Electric Power” (issued June 16, 2016)

35. CN Patent No. ZL 201180067131.6 entitled “Apparatus and Method for Hybrid Photovoltaic Device Having Multiple, Stacked, Heterogeneous, Semiconductor Junctions” (issued August 10, 2016)

36. CN Patent No. ZL201380012566.X entitled “Subtractive Hinge And Associated Methods” (issued August 24, 2016)

37. US Patent No. 9538671 entitled System For Housing And Powering A Battery-Operated Device And Associated Methods (issued January 3, 2017)

38. US Patent No. D781,228 entitled Pocket-Sized Photovoltaic-Based Fully Integrated Portable Power System (issued March 14, 2017)

39. US Patent No. 9601650 entitled Machine And Process For Continuous, Sequential, Deposition Of Semiconductor Solar Absorbers Having Variable Semiconductor Composition Deposited In Multiple Sublayers (issued March 21, 2017)

40. US Patent No. 9634175 entitled Systems And Methods For Thermally Managing High-Temperature Processes On Temperature Sensitive Substrates (issued April 25, 2017)

41. US Patent No. 9640706 entitled Hybrid Multi-Junction Photovoltaic Cells And Associated Methods (issued May 2, 2017)

42. US Patent No. 9640692 entitled Flexible Photovoltaic Array with Integrated Wiring and Control Circuitry, and Associated Methods (issued May 2, 2017)

43. US Patent No. 9653635 entitled Flexible High-Voltage Adaptable Current Photovoltaic Modules and Associated Methods (issued May 16, 2017)

44. Tawian Patent No. I583810 entitled Systems And Methods For Thermally Managing High-Temperature Processes On Temperature Sensitive Substrates (issued May 21, 2017)

45.

Switzerland Patent No. 2742535 entitled Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates (issued July 26, 2017)

46. EPC Patent No. 2742535 entitled Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates (issued July 26, 2017)

47. France Patent No. 2742535 entitled Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates (issued July 26, 2017)

48. Great Britain Patent No. 2742535 entitled Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates (issued July 26, 2017)

49. Germany Patent No. 602012035034.2 entitled Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates (issued July 26, 2017)

50. Taiwan Patent No. I595674 entitled Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates (issued August 11, 2017)

51. US Patent No. 9780242 entitled "Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates" (issued October 3, 2017)

Table of Contents

Published Patent Applications

1. "Flexible Photovoltaic Array with Integrated Wiring and Control Circuitry, and Associated Methods" (US 12/901,963) (filed October 11, 2010) (co-owned with PermaCity Corporation)

2. "Cd-Free, Oxide Buffer Layers for Thin Film CIGS Solar Cells By Chemical Solution Deposition Methods" (US 13/227,935) (filed September 8, 2011)

3. "Systems and Processes for Bifacial Collection and Tandem Junctions Using a Thin film Photovoltaic Device" (US 13/406,376) (filed February 27, 2012)

4. "Multilayer Thin Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates" (US 13/572,387) (filed August 10, 2012)

5. "Multilayer Thin Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates" (PCT/US2012/050398) (filed August 10, 2012)

6. "Multilayer Thin Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates" (CN 201280047345.1) (filed August 10, 2012)

7. "Apparatus and Method for Hybrid Photovoltaic Device Having Multiple, Stacked, Heterogeneous, Semiconductor Junctions" (EP 11804861.0) (filed December 13, 2011)

8. "Apparatus and Method for Hybrid Photovoltaic Device Having Multiple, Stacked, Heterogeneous, Semiconductor Junctions" (CN 201180067131.6) (filed December 13, 2011)

9. "Subtractive Hinge and Associated Methods (US 13/783,336) (filed March 3, 2013)

10. "Subtractive Hinge and Associated Methods (PCT/US 2013/28,929) (filed March 4, 2013)

11. "Subtractive Hinge and Associated Methods (CN 201380012566.X) (filed March 4, 2013)

12. "Subtractive Hinge and Associated Methods (EP 13758462.9) (filed March 4, 2013)

13. "System For Housing And Powering A Battery-Operated Device And Associated Methods" (US 13/802,713) (filed March 14, 2013)

14. "System For Housing And Powering A Battery-Operated Device And Associated Methods" (US 13/802,719) (filed March 14, 2013)

15. "System For Housing And Powering A Battery-Operated Device And Associated Methods" (PCT/US2013/34988) (filed April 2, 2013)

16. "Photovoltaic Assembly and Associated Methods" (US 14/038096) (filed September 26, 2013)

17. "Photovoltaic Assembly and Associated Methods" (PCT/US2013/62355) (filed September 27, 2013)

18. "Photovoltaic Assembly and Associated Methods" (CN 201380060351.5) (filed September 27, 2013)

19. "Photovoltaic Assembly and Associated Methods" (EP 13840976.8) (filed September 27, 2013)

20. "Flexible High-Voltage Adaptable Current Photovoltaic Modules and Associated Methods" (US 14/041,886) (filed September 30, 2013)

21. "Hybrid Multi-Junction Photovoltaic Cells And Associated Methods" (US 14/100,960) (filed December 9, 2013)

22. "System For Housing And Powering A Battery-Operated Device And Associated Methods" (PCT/US2013/74936) (filed December 13, 2013)

23.

"Systems And Methods For Thermally Managing High-Temperature Processes On Temperature Sensitive Substrates" (US 14/150,376) (filed January 8, 2014)

24. "Systems And Methods For Thermally Managing High-Temperature Processes On Temperature Sensitive Substrates" (PCT/US2014/10867) (filed January 8, 2014)

25. "Systems And Methods For Thermally Managing High-Temperature Processes On Temperature Sensitive Substrates" (CN 201480004408.4) (filed January 8, 2014)

26. "Systems And Methods For Thermally Managing High-Temperature Processes On Temperature Sensitive Substrates" (EP 14738271.7) (filed January 8, 2014)

27. "Multilayer Thin-Film Back Contact System For Flexible Photovoltaic Devices On Polymer Substrates" (PCT/US15/20184) (filed March 12, 2015)

28. "Array Of Monolithically Integrated Thin Film Photovoltaic Cells And Associated Methods" (14/252,485) (filed April 14, 2014)

29. "Subtractive Hinge And Associated Methods" (EP 13758462.9) (filed March 4, 2013)

30. "Photovoltaic Assembly and Associated Methods" (EP 13840976.8) (filed September 27, 2013)

31. "Systems And Methods For Thermally Managing High-Temperature Processes On Temperature Sensitive Substrates" (CN 201480004408.4) (filed January 9, 2014)

32. "Systems And Methods For Thermally Managing High-Temperature Processes On Temperature Sensitive Substrates" (EP 14738271.7) (filed January 9, 2014)

33. "Multilayer Thin-Film Back Contact System For Flexible Photovoltaic Devices On Polymer Substrates" (US 14/932,933) (filed November 4, 2015)

34. "Photovoltaic-Based Fully Integrated Portable Power Systems" (PCT/US16/12047) (filed January 4, 2016)

35. "Photovoltaic-Based Fully Integrated Portable Power System" (US 14/987,214) (filed January 4, 2016)

36. "Systems and Processes for Bifacial Collection and Tandem Junctions Using a Thin-Film Photovoltaic Device" (US 15/099,835) (filed April 15, 2016)

37. "Photovoltaic-Based Fully Integrated Portable Power Management And Networking System" (PCT/US16/25647) (filed April 1, 2016)

38. "Photovoltaic-Based Fully Integrated Portable Power Management And Networking System" (US 15/089,028) (filed April 1, 2016)

39. "Photovoltaic Device and Method of Manufacturing Same" (CN 201610416638.2) (filed December 13, 2011)

40. "Multilayer Thin-Film Back Contact System For Flexible Photovoltaic Devices On Polymer Substrates" (US 15/258,169) (filed September 7, 2016)

41. "Hybrid Multi-Junction Photovoltaic Cells And Associated Methods" (US 15/137,696) (filed April 25, 2016)

42. "Machine And Process For Continuous, Sequential, Deposition Of Semiconductor Solar Absorbers Having Variable Semiconductor Composition Deposited In Multiple Sublayers" (US 15/584,241) (filed May 2, 2017)

43. "Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates" (GB 12759843.1) (Filed August 10, 2012)

44. "Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates" (WO PCT/US16/58933) (Filed October 26, 2016)

45. "Subtractive Hinge and Associated Methods" (US 15/673,283) (Filed August 9, 2017)

Ascent Solar has trademark applications and registrations in the United States and worldwide for slogans and product family names such as Milpak, Corpak, Life is Limitless, Transforming Everyday Life, and Solar Power Everywhere.

Depending on country laws, the marks listed above may include the ™ or ® symbols.

Suppliers

We rely on several unaffiliated companies to supply certain raw materials used during the fabrication of our PV modules and PV integrated electronics. We acquire these materials on a purchase order basis and do not have long term purchase quantity commitments with the suppliers, although we may enter into such contracts in the future. We currently acquire all of our high temperature plastic from one supplier, although alternative suppliers of similar materials exist. We purchase component molybdenum, copper, indium, gallium, selenium and indium tin oxides from a variety of suppliers. We also currently are in the process of identifying and negotiating arrangements with alternative suppliers of materials in the United States and Asia.

The manufacturing equipment and tools used in our production process have been purchased from various suppliers in Europe, the United States and Asia. Although we have had good relations with our existing equipment and tools suppliers, we monitor and explore opportunities for developing alternative sources to drive our manufacturing costs down.

Employees

As of December 31, 2017, we had 71 full time employees.

Company History

We were formed in October 2005 from the separation by ITN of its Advanced Photovoltaic Division and all of that division's key personnel and core technologies. ITN, a private company incorporated in 1994, is an incubator dedicated to the development of thin film, PV, battery, fuel cell and nano technologies. Through its work on research and development contracts for private and government entities, ITN developed proprietary processing and manufacturing know-how applicable to PV products generally, and to CIGS PV products in particular. Our company was established by ITN to commercialize its investment in CIGS PV technologies. In January 2006, ITN assigned to us all its CIGS PV technologies and trade secrets and granted to us a perpetual, exclusive, royalty free worldwide license to use certain of ITN's proprietary process, control and design technologies in the production of CIGS PV modules. Upon receipt of the necessary government approvals in January 2007, ITN assigned government funded research and development contracts to us and also transferred the key personnel working on the contracts to us.

Corporate Information

We were incorporated under the laws of Delaware in October 2005. Our principal business office is located at 12300 Grant Street, Thornton, Colorado 80241, and our telephone number is (720) 872-5000. Our website address is *www.ascentsolar.com*. Information contained on our website or any other website does not constitute, and should not be considered, part of this Annual Report.

Available Information

We file with the Securities and Exchange Commission ("SEC") our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and all amendments to those reports, proxy statements and registration statements. You may read and copy any material we file with the SEC at the SEC's Public Reference Room at 100 F Street, NE, Washington, D.C. 20549. You may also obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. In addition, the SEC maintains an internet site at http://www.sec.gov that contains reports, proxy and information statements, and other information regarding issuers, including us, that file electronically. We make available free of charge on, or through, our website at *www.ascentsolar.com* our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to these reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended ("Exchange Act") as soon as reasonably practicable after we file these materials with the SEC.

Item 1A. Risk Factors

The risks included here are not exhaustive or exclusive. Other sections of this Annual Report may include additional factors which could adversely affect our business, results of operations and financial performance. We operate in a very competitive and rapidly changing environment. New risk factors emerge from time to time, and it is not possible for management to predict all such risk factors, nor can it assess the impact of all such risk factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements. Given these risks and uncertainties, investors should not place undue reliance on forward-looking statements as a prediction of actual results.

Risks Relating to Our Business

We have a limited history of operations, have not generated significant revenue from operations and have had limited production of our products. We have a limited operating history and have generated limited revenue from operations. Currently we are producing products in quantities necessary to meet current demand. Under our current business plan, we expect losses to continue until annual revenues and gross margins reach a high enough level to cover operating expenses. We are utilizing contract manufacturers in Asia for components and for final assembly of finished goods. Our ability to achieve our business, commercialization and expansion objectives will depend on a number of factors, including whether:

- We can generate customer acceptance of and demand for our products;
- We successfully ramp up commercial production on the equipment installed;
- Our products are successfully and timely certified for use in our target markets;

- We successfully operate production tools to achieve the efficiencies, throughput and yield necessary to reach our cost targets;
- The products we design are saleable at a price sufficient to generate profits;
- We raise sufficient capital to enable us to reach a level of sales sufficient to achieve profitability on terms favorable to us;

- We are able to successfully design, manufacture, market, distribute and sell our products;
- We effectively manage the planned ramp up of our operations;
- We successfully develop and maintain strategic relationships with key partners, including OEMs, system integrators and distributors, retailers and e-commerce companies, who deal directly with end users in our target markets;
- Our ability to maintain the listing of our common stock on the OTCBB Market;
- Our ability to achieve projected operational performance and cost metrics;
- Our ability to enter into commercially viable licensing, joint venture, or other commercial arrangements; and
- The availability of raw materials.

Each of these factors is critical to our success, and accomplishing each of these tasks may take longer or cost more than expected, or may never be accomplished. It also is likely that problems we cannot now anticipate will arise. If we cannot overcome these problems, our business, results of operations and financial condition could be materially and adversely affected.

We have to date incurred net losses and may be unable to generate sufficient sales in the future to become profitable. We incurred a net loss of $19 million for the year ended December 31, 2017 and reported an accumulated deficit of $402 million as of December 31, 2017. We expect to incur net losses in the near term. Our ability to achieve profitability depends on a number of factors, including market acceptance of our specialty PV products at competitive prices. If we are unable to raise additional capital and generate sufficient revenue to achieve profitability and positive cash flows, we may be unable to satisfy our commitments and may have to discontinue operations.

Our business is based on a new technology, and if our PV modules or processes fail to achieve the performance and cost metrics that we expect, then we may be unable to develop demand for our PV modules and generate sufficient revenue to support our operations. Our CIGS on flexible plastic substrate technology is a relatively new technology. Our business plan and strategies assume that we will be able to achieve certain milestones and metrics in terms of throughput, uniformity of cell efficiencies, yield, encapsulation, packaging, cost and other production parameters. We cannot assure you that our technology will prove to be commercially viable in accordance with our plan and strategies. Further, we or our strategic partners and licensees may experience operational problems with such technology after its commercial introduction that could delay or defeat the ability of such technology to generate revenue or operating profits. If we are unable to achieve our targets on time and within our planned budget, then we may not be able to develop adequate demand for our PV modules, and our business, results of operations and financial condition could be materially and adversely affected.

Our failure to further refine our technology and develop and introduce improved PV products could render our PV modules uncompetitive or obsolete and reduce our net sales and market share. Our success requires us to invest significant financial resources in research and development to keep pace with technological advances in the solar energy industry. However, research and development activities are inherently uncertain, and we could encounter practical difficulties in commercializing our research results. Our expenditures on research and development may not be sufficient to produce the desired technological advances, or they may not produce corresponding benefits. Our PV modules may be rendered obsolete by the technological advances of our competitors, which could harm our results of operations and adversely impact our net sales and market share.

Failure to expand our manufacturing capability successfully at our facilities would adversely impact our ability to sell our products into our target markets and would materially and adversely affect our business, results of operations and financial condition. Our growth plan calls for production and operation at our facility. Successful operations will require substantial engineering and manufacturing resources and are subject to significant risks, including risks of cost overruns, delays and other risks, such as geopolitical unrest that may cause us not to be able to successfully operate in other countries. Furthermore, we may never be able to operate our production processes in high volume or at the volumes projected, make planned process and equipment improvements, attain projected manufacturing yields or desired annual capacity, obtain timely delivery of components, or hire and train the additional employees and management needed to scale our operations. Failure to meet these objectives on time and within our planned budget could materially and adversely affect our business, results of operations and financial condition.

We may be unable to manage the expansion of our operations and strategic alliances effectively. We will need to significantly expand our operations and form beneficial strategic alliances in order to reduce manufacturing costs through economies of scale and partnerships, secure contracts of commercially material amounts with reputable customers and capture a meaningful share of our target markets. To manage the expansion of our operations and alliances, we will be required to improve our operational and financial systems, oversight, procedures and controls and expand, train and manage our growing employee base. Our management team will also be required to maintain and cultivate our relationships with partners, customers, suppliers and other third parties and attract new partners, customers and suppliers. In addition, our current and planned operations, personnel, facility size and configuration, systems and internal procedures and controls, even when augmented through strategic alliances, might be inadequate or insufficient to support our future growth. If we cannot manage our growth effectively, we may be unable to take advantage of market opportunities, execute our business strategies or respond to competitive pressures, resulting in a material and adverse effect to our business, results of operations and financial condition.

We depend on a limited number of third party suppliers for key raw materials, and their failure to perform could cause manufacturing delays and impair our ability to deliver PV modules to customers in the required quality and quantity and at a price that is profitable to us. Our failure to obtain raw materials and components that meet our quality, quantity and cost requirements in a timely manner could interrupt or impair our ability to manufacture our products or increase our manufacturing cost. Most of our key raw materials are either sole sourced or sourced by a limited number of third party suppliers. As a result, the failure of any of our suppliers to perform could disrupt our supply chain and impair our operations. Many of our suppliers are small companies that may be unable to supply our increasing demand for raw materials as we implement our planned expansion. We may be unable to identify new suppliers in a timely manner or on commercially reasonable terms. Raw materials from new suppliers may also be less suited for our technology and yield PV modules with lower conversion efficiencies, higher failure rates and higher rates of degradation than PV modules manufactured with the raw materials from our current suppliers.

Our continuing operations will require additional capital which we may not be able to obtain on favorable terms, if at all or without dilution to our stockholders. Since inception, we have incurred significant losses. We expect to continue to incur net losses in the near term. For the year ended December 31, 2017, our cash used in operations was $12.6 million. At December 31, 2017, we had cash and equivalents of $90,000.

Although we have commenced production at our manufacturing facility, we do not expect that sales revenue and cash flows will be sufficient to support operations and cash requirements until we have fully implemented our new strategy of focusing on high value PV products. Additional projected product revenues are not anticipated to result in a positive cash flow position for the year 2018 overall. The Company will need to raise additional capital in order to continue our current level of operations throughout 2018.

To the extent that we may need to raise additional capital in the future there is no assurance that we will be able to raise additional capital on acceptable terms or at all. If we raise additional funds through the issuance of equity or convertible debt securities, the percentage ownership of our existing stockholders could be significantly diluted, and these newly issued securities may have rights, preferences or privileges senior to those of existing stockholders. If we raise additional funds through debt financing, which may involve restrictive covenants, our ability to operate our business may be restricted. If adequate funds are not available or are not available on acceptable terms, if and when needed, our ability to fund our operations, take advantage of unanticipated opportunities, develop or enhance our products, expand capacity or otherwise respond to competitive pressures could be significantly limited, and our business, results of operations and financial condition could be materially and adversely affected.

In addition, the terms of a loan we obtained from the Colorado Housing and Finance Authority ("CHFA") in connection with our purchase and improvement of our Thornton, Colorado facility contain covenants that limit our ability, without the consent of CHFA, to create or incur additional indebtedness (other than obligations created or incurred in the ordinary course of business such as working capital financing); merge or consolidate with any other entity; or make loans or advances to our officers, shareholders, directors or employees. The presence of these covenants gives CHFA the ability to bar us from engaging in certain transactions in the future that we may determine are necessary or advisable to meet our business objectives, including debt offerings and acquisitions of or by other companies. If CHFA were to withhold its written consent under these or other circumstances, we could be forced to prepay such loans at a premium, which could adversely affect our business, results of operations and financial condition.

Our products may never gain sufficient market acceptance, in which case we would be unable to sell our products or achieve profitability. Demand for our products may never develop sufficiently, and our products may never gain market acceptance, if we fail to produce products that compare favorably against competing products on the basis of cost, quality, weight, efficiency and performance. Demand for our products also will depend on our ability to develop and maintain successful relationships with key partners, including distributors, retailers, OEMs, system integrators and value added resellers. If our products fail to gain market acceptance as quickly as we envision or at all, our business, results of operations and financial condition could be materially and adversely affected.

We are targeting emerging markets for a significant portion of our planned product sales. These markets are new and may not develop as rapidly as we expect, or may not develop at all. Our target markets include portable power, defense, transportation, space and near space markets. Although certain areas of these markets have started to develop, some of them are in their infancy. We believe these markets have significant long term potential; however, some or all of these markets may not develop and emerge as we expect. If the markets do develop as expected, there may be other products that could provide a superior product or a comparable product at lower prices than our products. If these markets do not develop as we expect, or if competitors are better able to capitalize on these markets our revenues and product margins may be negatively affected.

Failure to consummate strategic relationships with key partners in our various target market segments, such as defense and portable power, transportation, space and near space, and the respective implementations of the right strategic partnerships to enter these various specified markets, could adversely affect our projected sales, growth and revenues. We intend to sell thin-film PV modules for use in portable power systems, defense and portable power systems, transportation, space and near space solar panel applications. Our marketing and distribution strategy is to form strategic relationships with distributors, value added resellers and e-commerce to provide a foothold in these target markets. If we are unable to successfully establish working relationships with such market participants or if, due to cost, technical or other factors, our products prove unsuitable for use in such applications; our projected revenues and operating results could be adversely affected.

If sufficient demand for our products does not develop or takes longer to develop than we anticipate, we may be unable to grow our business, generate sufficient revenue to attain profitability or continue operations. The solar energy industry is at a relatively early stage of development, and the extent to which PV modules, including our own, will be widely adopted is uncertain. While pure PV solutions is not our short term primary market, if PV technology proves unsuitable for widespread adoption or if demand for PV modules fails to develop sufficiently, long term we may be unable to grow our business, generate sufficient sales to attain profitability or continue operations. Many factors, of which several are outside of our control, may affect the viability of widespread adoption of PV technology and demand for PV modules.

We face intense competition from other manufacturers of thin-film PV modules and other companies in the solar energy industry. The solar energy and renewable energy industries are both highly competitive and continually evolving as participants strive to distinguish themselves within their markets and compete with the larger electric power industry. We believe our main sources of competition are other thin film PV manufacturers and companies developing other solar solutions, such as solar thermal and concentrated PV technologies.

Many of our existing and potential competitors have substantially greater financial, technical, manufacturing and other resources than we do. A competitor's greater size provides them with a competitive advantage because they often can realize economies of scale and purchase certain raw materials at lower prices. Many of our competitors also have greater brand name recognition, established distribution networks and large customer bases. In addition, many of our competitors have well-established relationships with our current and potential partners and distributors and have extensive knowledge of our target markets. As a result of their greater size, these competitors may be able to devote more resources to the research, development, promotion and sale of their products or respond more quickly to evolving industry standards and changes in market conditions than we can. Our failure to adapt to changing market conditions and to compete successfully with existing or future competitors could materially and adversely affect our business, results of operations and financial condition.

Problems with product quality or performance may cause us to incur warranty expenses, damage our market reputation and prevent us from maintaining or increasing our market share. If our products fail to perform as expected while under warranty, or if we are unable to support the warranties, sales of our products may be adversely affected or our costs may increase, and our business, results of operations and financial condition could be materially and adversely affected.

We may also be subject to warranty or product liability claims against us that are not covered by insurance or are in excess of our available insurance limits. In addition, quality issues can have various other ramifications, including delays in the recognition of revenue, loss of revenue, loss of future sales opportunities, increased costs associated with repairing or replacing products, and a negative impact on our goodwill and reputation. The possibility of future product failures could cause us to incur substantial expenses to repair or replace defective products. Furthermore, widespread product failures may damage our market reputation and reduce our market share causing sales to decline.

The interests of Tertius Financial Group and our CEO Victor Lee may conflict with our interests or your interests now or in the future. As of December 31, 2017, Tertius Financial Group Pte Ltd ("Tertius") owned approximately 3% of our outstanding common stock. Our CEO Victor Lee is a 50% owner and managing director of Tertius. Tertius is an investment firm based in Singapore. Mr. Lee devotes substantially all of his business time to his positions with the Company and does not devote a material amount of his business time to Tertius.

Tertius may from time to time acquire and hold interests in businesses that compete directly or indirectly with us. Tertius also may pursue opportunities (including by acquisition) that may be adverse to, or be in direct or indirect competition with us. Additionally, our potential customers may be competitors of Tertius and our interests in selling to those customers could be divergent from Tertius's competitive interests. So long as Tertius continues to own a significant amount of the outstanding shares of our common stock and Mr. Lee is President and Chief Executive Officer, Tertius may be able to strongly influence or effectively control our decisions,

Currency translation risk may negatively affect our net sales, cost of equipment, cost of sales, gross margin or profitability and could result in exchange losses. Although our reporting currency is the U.S. dollar, we may conduct business and incur costs in the local currencies of other countries in which we operate, make sales or buy equipment or materials. As a result, we are subject to currency translation risk. Our future contracts and obligations may be exposed to fluctuations in currency exchange rates, and, as a result, our capital expenditures or other costs may exceed what we have budgeted. Further, changes in exchange rates between foreign currencies and the U.S. dollar could affect our net sales and cost of sales and could result in exchange losses. We cannot accurately predict future exchange rates or the overall impact of future exchange rate fluctuations on our business, results of operations and financial condition.

A significant increase in the price of our raw materials could lead to higher overall costs of production, which would negatively affect our planned product margins, or make our products uncompetitive in the PV market. Our raw materials include high temperature plastics and various metals. Significant increases in the costs of these raw materials may impact our ability to compete in our target markets at a price sufficient to produce a profit.

Our intellectual property rights or our means of enforcing those rights may be inadequate to protect our business, which may result in the unauthorized use of our products or reduced sales or otherwise reduce our ability to compete. Our business and competitive position depends upon our ability to protect our intellectual property rights and proprietary technology, including any PV modules that we develop. We attempt to protect our intellectual property rights, primarily in the United States, through a combination of patent, trade secret and other intellectual property laws, as well as licensing agreements and third party nondisclosure and assignment agreements. Because of the differences in foreign patent and other laws concerning intellectual property rights, our intellectual property rights may not receive the same degree of protection in foreign countries as they would in the United States. Our failure to obtain or maintain adequate protection of our intellectual property rights, for any reason, could have a materially adverse effect on our business, results of operations and financial condition. Further, any patents issued in connection with our efforts to develop new technology for PV modules may not be broad enough to protect all of the potential uses of our technology.

We also rely on unpatented proprietary technology. It is possible others will independently develop the same or similar technology or otherwise obtain access to our unpatented technology. To protect our trade secrets and other proprietary information, we require our employees, consultants and advisors to execute proprietary information and invention assignment agreements when they begin working for us. We cannot assure these agreements will provide meaningful protection of our trade secrets, unauthorized use, misappropriation or disclosure of trade secrets, know how or other proprietary information. Despite our efforts to protect this information, unauthorized parties may attempt to obtain and use information that we regard as proprietary. If we are unable to maintain the proprietary nature of our technologies, we could be materially adversely affected.

In addition, when others control the prosecution, maintenance and enforcement of certain important intellectual property, such as technology licensed to us, the protection and enforcement of the intellectual property rights may be outside of our control. If the entity that controls intellectual property rights that are licensed to us does not adequately protect those rights, our rights may be impaired, which may impact our ability to develop, market and commercialize our products. Further, if we breach the terms of any license agreement pursuant to which a third party licenses us intellectual property rights, our rights under that license may be affected and we may not be able to continue to use the licensed intellectual property rights, which could adversely affect our ability to develop, market and commercialize our products.

If third parties claim we are infringing or misappropriating their intellectual property rights, we could be prohibited from selling our PV products, be required to obtain licenses from third parties or be forced to develop non-infringing alternatives, and we could be subject to substantial monetary damages and injunctive relief. The PV industry is characterized by the existence of a large number of patents and frequent litigation based on allegations of patent infringement. We are aware of numerous issued patents and pending patent applications owned by third parties that may relate to current and future generations of solar energy. The owners of these patents may assert the manufacture, use or sale of any of our products infringes one or more claims of their patents. Moreover, because patent applications can take many years to issue, there may be currently pending applications, unknown to us, which may later result in issued patents that materially and adversely affect our business. Third parties could also assert claims against us that we have infringed or misappropriated their intellectual property rights. Whether or not such claims are valid, we cannot be certain we have not infringed the intellectual property rights of such third parties. Any infringement or misappropriation claim could result in significant costs or substantial damages to our business or an inability to manufacture, market or sell any of our PV modules found to infringe or misappropriate. Even if we were to prevail in any such action, the litigation could result in substantial cost and diversion of resources that could materially and adversely affect our business. The large number of patents, the rapid rate of new patent issuances, the complexities of the technology involved and uncertainty of litigation increase the risk of business assets and management's attention being diverted to patent litigation. Even if obtaining a license were feasible, it could be costly and time consuming. We might be forced to obtain additional licenses from our existing licensors in the event the scope of the intellectual property we have licensed is too narrow to cover our activities, or in the event the licensor did not have sufficient rights to grant us the license(s) purportedly granted. Also, some of our licenses may restrict or limit our ability to grant sub-licenses and/or assign rights under the licenses to third parties, which may limit our ability to pursue business opportunities.

Our future success depends on retaining our Chief Executive Officer and existing management team and hiring and assimilating new key employees and our inability to attract or retain key personnel would materially harm our business and results of operations. Our success depends on the continuing efforts and abilities of our executive officers, including Mr. Victor Lee, our President and Chief Executive Officer, our other executive officers, and key technical personnel. Our future success also will depend on our ability to attract and retain highly skilled employees, including management, technical and sales personnel. The loss of any of our key personnel, the inability to attract, retain or assimilate key personnel in the future, or delays in hiring required personnel could materially harm our business, results of operations and financial condition.

Our PV modules contain limited amounts of cadmium sulfide, and claims of human exposure or future regulations could have a material adverse effect on our business, results of operations and financial condition. Our PV modules contain limited amounts of cadmium sulfide, which is regulated as a hazardous material due to the adverse health effects that may arise from human exposure, and is banned in certain countries. We cannot assure you that human or environmental exposure to cadmium sulfide used in our PV modules will not occur. Any such exposure could result in third party claims against us, damage to our reputation and heightened regulatory scrutiny of our PV modules. Future regulation relating to the use of cadmium in various products could force us to seek regulatory exemptions or impact the manufacture and sale of our PV modules and could require us to incur unforeseen environmental related costs. The occurrence of future events such as these could limit our ability to sell and distribute our PV modules, and could have a material adverse effect on our business, results of operations and financial condition.

Environmental obligations and liabilities could have a substantial negative impact on our financial condition, cash flows and profitability. We are subject to a variety of federal, state, local and foreign laws and regulations relating to the protection of the environment, including those governing the use, handling, generation, processing, storage, transportation and disposal of, or human exposure to, hazardous and toxic materials (such as the cadmium used in our products), the discharge of pollutants into the air and water, and occupational health and safety. We are also subject to environmental laws which allow regulatory authorities to compel, or seek reimbursement for, cleanup of environmental contamination at sites now or formerly owned or operated by us and at facilities where our waste is or has been disposed. We may incur significant costs and capital expenditures in complying with these laws and regulations. In addition, violations of, or liabilities under, environmental laws or permits may result in restrictions being imposed on our operating activities or in our being subjected to substantial fines, penalties, criminal proceedings, third party property damage or personal injury claims, cleanup costs or other costs. Also, future developments such as more aggressive enforcement policies, the implementation of new, more stringent laws and regulations, or the discovery of presently unknown environmental conditions or noncompliance may require expenditures that could have a material adverse effect on our business, results of operations and financial condition. Further, greenhouse gas emissions have increasingly become the subject of international, national, state and local attention. Although future regulations could potentially lead to an increased use of alternative energy, there can be no guarantee that such future regulations will encourage solar technology. Given our limited history of operations, it is difficult to predict future environmental expenses.

We currently anticipate having substantial international operations that will subject us to a number of risks, including potential unfavorable political, regulatory, labor and tax conditions in foreign countries. We expect to expand our operations abroad in the future and, as a result, we may be subject to the legal, political, social and regulatory requirements and economic conditions of foreign jurisdictions. Risks inherent to international operations, include, but are not limited to, the following:

- Difficulty in procuring supplies and supply contracts abroad;
- Difficulty in enforcing agreements in foreign legal systems;
- Foreign countries imposing additional withholding taxes or otherwise taxing our foreign income, imposing tariffs or adopting other restrictions on foreign trade and investment, including currency exchange controls;
- Inability to obtain, maintain or enforce intellectual property rights;
- Risk of nationalization;
- Changes in general economic and political conditions in the countries in which we may operate, including changes in the government incentives we might rely on;
- Unexpected adverse changes in foreign laws or regulatory requirements, including those with respect to environmental protection, export duties and quotas;
- Difficulty with staffing and managing widespread operations;
- Trade barriers such as export requirements, tariffs, taxes and other restrictions and expenses, which could increase the prices of our products and make us less competitive in some countries; and
- Difficulty of, and costs relating to, compliance with the different commercial and legal requirements of the international markets in which we plan to offer and sell our PV products.

Our business in foreign markets will require us to respond to rapid changes in market conditions in these countries. Our overall success as an international business depends, in part, on our ability to succeed in differing legal, regulatory, economic, social and political conditions. If we are not able to develop and implement policies and strategies that are effective in each location where we will do business, then our business, results of operations and financial condition could be materially and adversely affected.

Existing regulations and policies and changes to these regulations and policies may present technical, regulatory and economic barriers to the purchase and use of PV products, which may significantly reduce demand for our PV products. The market for electricity generation products is heavily influenced by foreign, U.S., state and local government regulations and policies concerning the electric utility industry, as well as policies promulgated by electric utilities. These regulations and policies often relate to electricity pricing and technical interconnection of customer owned electricity generation. In the United States and in a number of other countries, these regulations and policies have been modified in the past and may be modified again in the future. These regulations and policies could deter end user purchases of PV products and investment in the research and development of PV technology. For example, without a mandated regulatory exception for PV systems, utility customers are often charged interconnection or standby fees for putting distributed power generation on the electric utility grid. These fees could increase the cost to our end users of using PV systems and make them less desirable, thereby harming our business, prospects, results of operations and financial condition. In addition, electricity generated by PV systems mostly competes with expensive peak hour electricity, rather than the less expensive average price of electricity. Modifications to the peak hour pricing policies of utilities, such as to a flat rate, would require PV systems to achieve lower prices in order to compete with the price of electricity from other sources.

We anticipate that our PV modules and their use in installations will be subject to oversight and regulation in accordance with national and local ordinances relating to building codes, safety, environmental protection, utility interconnection and metering and related matters. It is difficult to track the requirements of individual states and design equipment to comply with the varying standards. Any new government regulations or utility policies pertaining to PV modules may result in significant additional expenses to us, our business partners and their customers and, as a result, could cause a significant reduction in demand for our PV modules.

We have identified material weaknesses in our internal control over financial reporting. If our remedial measures are insufficient to address the material weaknesses, or if additional material weaknesses or significant deficiencies in our internal control over financial reporting are discovered or occur in the future, our consolidated financial statements may contain material misstatements, which could adversely affect our stock price and could negatively impact our results of operations. At December 31, 2016, we concluded that there were material weaknesses in our internal control over financial reporting. A material weakness is a deficiency, or combination of deficiencies, in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of our annual or interim financial statements will not be prevented or detected on a timely basis. See Item 9A in Part II of this Annual Report on Form 10-K for details.

As of December 31, 2017, we concluded that the above mentioned material weakness had been remedied and our internal control over financial reporting was no longer deficient. However, there can be no assurances that we will be able to prevent future control deficiencies (including material weaknesses) from happening that could cause us to incur unforeseen costs, negatively impact our results of operations, cause our consolidated financial results to contain material misstatements, cause the market price of our common stock to decline, damage our reputation or have other potential material adverse consequences.

Risks Relating to our Securities and an Investment in our Common Stock

As a public company we are subject to complex legal and accounting requirements that require us to incur substantial expenses, and our financial controls and procedures may not be sufficient to ensure timely and reliable reporting of financial information, which, as a public company, could materially harm our stock price and listing on the OTCBB. As a public company, we are subject to numerous legal and accounting requirements that do not apply to private companies. The cost of compliance with many of these requirements is substantial, not only in absolute terms but, more importantly, in relation to the overall scope of the operations of a small company. Failure to comply with these requirements can have numerous adverse consequences including, but not limited to, our inability to file required periodic reports on a timely basis, loss of market confidence, delisting of our securities and/or governmental or private actions against us. We cannot assure you we will be able to comply with all of these requirements or the cost of such compliance will not prove to be a substantial competitive disadvantage vis-à-vis our privately held and larger public competitors.

The Sarbanes-Oxley Act of 2002 ("Sarbanes-Oxley") requires, among other things, that we maintain effective internal control over financial reporting and disclosure controls and procedures. In particular, we must perform system and process evaluation and testing of our internal control over financial reporting to allow management to report on the effectiveness of our internal control over financial reporting, as required by Section 404 of Sarbanes-

Oxley. Our compliance with Section 404 of Sarbanes-Oxley will require we incur substantial accounting expense and expend significant management efforts. The effectiveness of our controls and procedures may, in the future, be limited by a variety of factors, including:

- Faulty human judgment and simple errors, omissions or mistakes;

- Fraudulent action of an individual or collusion of two or more people;
- Inappropriate management override of procedures; and
- The possibility that any enhancements to controls and procedures may still not be adequate to assure timely and accurate financial information.

If we are not able to comply with the requirements of Section 404 in a timely manner, or if we or our independent registered public accounting firm, identifies deficiencies in our internal control over financial reporting that are deemed to be material weaknesses, we may be subject to OTCBB delisting, investigations by the SEC and civil or criminal sanctions.

Our ability to successfully implement our business plan and comply with Section 404 requires us to be able to prepare timely and accurate financial statements. We expect we will need to continue to improve existing, and implement new operational, financial and accounting systems, procedures and controls to manage our business effectively.

Any delay in the implementation of, or disruption in the transition to, new or enhanced systems, procedures or controls may cause our operations to suffer, and we may be unable to conclude that our internal control over financial reporting is effective as required under Section 404 of Sarbanes-Oxley. If we are unable to complete the required Section 404 assessment as to the adequacy of our internal control over financial reporting, if we fail to maintain or implement adequate controls, our ability to obtain additional financing could be impaired. In addition, investors could lose confidence in the reliability of our internal control over financial reporting and in the accuracy of our periodic reports filed under the Exchange Act. A lack of investor confidence in the reliability and accuracy of our public reporting could cause our stock price to decline.

The price of our common stock may continue to be volatile. Our common stock is currently traded on the OTCBB Market. The trading price of our common stock from time to time has fluctuated widely and may be subject to similar volatility in the future. For example, during the calendar year ended December 31, 2017, our common stock traded below $0.01. The trading price of our common stock in the future may be affected by a number of factors, including events described in these “Risk Factors.” In recent years, broad stock market indices, in general, and smaller capitalization and PV companies, in particular, have experienced substantial price fluctuations. In a volatile market, we may experience wide fluctuations in the market price of our common stock. These fluctuations may have a negative effect on the market price of our common stock regardless of our operating performance. In the past, following periods of volatility in the market price of a company’s securities, securities class action litigation has often been instituted. A securities class action suit against us could result in substantial costs, potential liabilities and the diversion of management’s attention and resources, and could have a material adverse effect on our financial condition.

Our stockholders may experience significant dilution as a result of shares of our common stock issued pursuant to our currently outstanding securities and existing agreements, and pursuant to new securities that we may issue in the future. We are likely to issue substantial amounts of additional common stock in connection with most of our outstanding convertible preferred stock and convertible notes. We may also issue additional common stock or securities convertible into or exchangeable or exercisable for common stock, in connection with future capital raising transactions.

Most of our outstanding convertible preferred stock and convertible notes contain variable pricing mechanisms. The number of shares that we will issue pursuant to the aforementioned financial instruments will fluctuate based on the price of our common stock. Depending on market liquidity at the time, sales of such shares into the market may cause the trading price of our common stock to fall.

The issuance of material amounts of common stock by us would cause our existing stockholders to experience significant dilution in their investment in our Company. Also, if we obtain additional financing involving the issuance of equity securities or securities convertible into equity securities, our existing stockholders’ investment would be further diluted. Such dilution could cause the market price of our common stock to decline, which could impair our ability to raise additional financing.

Sales of a significant number of shares of our common stock in the public markets or significant short sales of our stock, or the perception that such sales could occur, could depress the market price of our common stock and impair our ability to raise capital. Sales of a substantial number of shares of our common stock or other equity-related securities in the public markets could depress the market price of our common stock. If there are significant short sales of our stock, the price decline that could result from this activity may cause the share price to decline more so, which, in turn, may cause long holders of the stock to sell their shares, thereby contributing to sales of stock in the market. Such sales also may impair our ability to raise capital through the sale of additional equity securities in the future at a time and price that our management deems acceptable, if at all. In addition, a large number of our outstanding shares are not registered under the Securities Act. If and when these shares are registered or become eligible for sale to the public market, the market price of our common stock could also decline.

Our common stock has been delisted from the NASDAQ Capital Market and the OTCQB Venture Market. Our inability to maintain our prior listings on NASDAQ and OTCQB may limit the liquidity of our stock, increase its volatility and hinder our ability to raise capital. On February 25, 2016, our common stock was delisted from the NASDAQ Capital Market and began trading on the OTCQB Venture Market. On May 20, 2017 our common stock was delisted from the OTCQB Venture Market and began trading on the OTCBB.

Upon such delisting from NASDAQ, our common stock became subject to the regulations of the SEC relating to the market for penny stocks. A penny stock is any equity security not traded on a national securities exchange that has a market price of less than $5.00 per share. The regulations applicable to penny stocks may severely affect the market liquidity for our common stock and could limit the ability of shareholders to sell securities in the secondary market. Accordingly, investors in our common stock may find it more difficult to dispose of or obtain accurate quotations as to the market value of our common stock, and there can be no assurance that our common stock will be continue to be eligible for trading or quotation on the OTCBB or any other alternative exchanges or markets.

The delisting of our common stock from the NASDAQ Capital Market and the OTCQB Venture Market may adversely affect our ability to raise additional financing through public or private sales of equity securities, may significantly affect the ability of investors to trade our securities, and may negatively affect the value and liquidity of our common stock. Such delisting from the NASDAQ Capital Market and the OTCQB Venture Market may also have other negative results, including the potential loss of confidence by employees, the loss of institutional investor interest and fewer business development opportunities.

Some provisions of our charter documents and Delaware law may have anti-takeover effects that could discourage an acquisition of us by others, even if an acquisition would be beneficial to our stockholders, and may prevent attempts by our stockholders to replace or remove our current management. Provisions in our Amended and Restated Certificate of Incorporation and Second Amended and Restated Bylaws, each as amended, as well as provisions of Delaware law, could make it more difficult for a third party to acquire us, or for a change in the composition of our Board of Directors (our “Board”) or management to occur, even if doing so would benefit our stockholders. These provisions include:

- Authorizing the issuance of “blank check” preferred stock, the terms of which may be established and shares of which may be issued without stockholder approval;
- Dividing our Board into three classes;
- Limiting the removal of directors by the stockholders; and
- Limiting the ability of stockholders to call a special meeting of stockholders.

In addition, we are subject to Section 203 of the Delaware General Corporation Law, which generally prohibits a Delaware corporation from engaging in any of a broad range of business combinations with an interested stockholder for a period of three years following the date on which the stockholder became an interested stockholder, unless such transactions are approved by our Board. This provision could have the effect of delaying or preventing a change of control, whether or not it is desired by, or beneficial to, our stockholders.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

We own an approximately 138,000 square foot manufacturing and office facility in Thornton, Colorado.

Item 3. Legal Proceedings

On October 21, 2011, we were notified that a complaint (the “Lawsuit”) was filed by Jefferies & Company, Inc. ("Jefferies") against us in state court located in the County and State of New York.

In December 2010, we and Jefferies entered into an agreement (the “Fee Agreement”) pursuant to which Jefferies was hired to act as our financial advisor in relation to certain potential transactions. In the Lawsuit, Jefferies claims it is entitled to receive an investment banking fee of $3.0 million (plus expense reimbursement of approximately $49,000) under the Fee Agreement in connection with the August 2011 investment and strategic alliance transaction (the “Financing”) between us and TFG Radiant. In addition, should it prevail at trial, Jefferies would be able to claim an award for attorney's fees and prejudgment interest in the approximate amount of $1.2 million.

On April 16, 2014, the parties settled the lawsuit where the Company agreed to pay Jefferies a total of $2.0 million in equal installments over 40 months.

The Company records a liability in its financial statements for costs related to claims, including settlements and judgments, where the Company has assessed that a loss is probable and an amount can be reasonably estimated. The Company accrued $1.7 million, the net present value of the $2.0 million settlement, as of December 31, 2013. As of December 31, 2017, the settlement had been redeemed in full and there was no remaining accrued litigation settlement recorded as a current liability in the Consolidated Balance Sheet.

Item 4. Mine Safety Disclosures

Not applicable.

PART II

Item 5. Market For Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Market Information

Our stock previously traded on the NASDAQ Capital Market. On February 23, 2016 the Company received notice from NASDAQ stating that NASDAQ had determined to delist the Company's common stock. On May 20, 2017 our common stock was delisted from the OTCQB Venture Market and began trading on the OTCBB. Our trading symbol is "ASTI." The following table sets forth the high and low sales price information per share for our common stock for the last two completed fiscal years, as adjusted for the Reverse Stock Split.

Price Range of Common Stock

	High	Low
Fiscal 2016		
First Quarter	$ 52.0000	$ 18.4000
Second Quarter	$ 1.3980	$ 0.0520
Third Quarter	$ 0.0850	$ 0.0130
Fourth Quarter	$ 0.0243	$ 0.0025
Fiscal 2017		
First Quarter	$ 0.0078	$ 0.0014
Second Quarter	$ 0.0023	$ 0.0003
Third Quarter	$ 0.0026	$ 0.0004
Fourth Quarter	$ 0.0018	$ 0.0007

Holders

As of December 31, 2017, the number of record holders of our common stock was 39. Because many of our shares of common stock are held by brokers and other institutions on behalf of stockholders, we are unable to estimate the total number of stockholders represented by these record holders.

Dividends

The holders of common stock are entitled to receive such dividends as may be declared by our Board of Directors. During the years ended December 31, 2017 and 2016, we did not pay any common stock dividends, and we do not expect to declare or pay any dividends in the foreseeable future. Payment of future dividends will be within the discretion of our Board of Directors and will depend on, among other factors, our retained earnings, capital requirements, and operating and financial condition.

Item 6. Selected Financial Data

Smaller reporting companies are not required to provide the information required by this Item.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

The following discussion of our financial condition and results of operations should be read in conjunction with our audited financial statements and the notes to those financial statements appearing elsewhere in this Form 10-K. This discussion and analysis contains statements of a forward-looking nature relating to future events or our future financial performance. As a result of many factors, our actual results may differ materially from those anticipated in these forward-looking statements. These statements involve known and unknown risks, uncertainties and other factors that may cause our actual results, levels of activity, performance or achievements to be materially different from any future results, levels of activity, performance or achievements expressed or implied by these forward-looking statements.

Overview

We are a company formed to commercialize flexible PV modules using our proprietary technology. For the year ended December 31, 2017, we generated $642 thousand of revenue. Our revenue from product sales accounted for 100% of total revenue as there was no revenue generated from government research and development contracts during the year. As of December 31, 2017, we had an accumulated deficit of $402.5 million.

In 2012, we evolved our business model to include B2C, solution based, PV integrated consumer electronics to our off grid high value solar power generation strategy. In June of 2012, we launched our new line of consumer products under the EnerPlex™ brand, and introduced our first product, the Surfr™, a battery and solar case for the Apple® iPhone® 4/4S smart phone, featuring our ultra-light CIGS thin film technology integrated directly into the case. The case incorporates our ultra-light and thin PV module into a sleek, protective iPhone 4/4S case, along with a thin, life extending, lithium-polymer battery. The case adds minimal weight and size to an iPhone smartphone, yet provides supplemental charging when needed. In August of 2012, we announced the launch of the second version of the Surfr for the Samsung® Galaxy S® III, which provides 85% additional battery life.

In December 2012, we launched the EnerPlex Kickr™ and EnerPlex Jumpr™ product series. The Kickr IV is an extremely portable, compact and durable solar charging device, approximately seven inches by seven inches when folded, and weighs less than half a pound. The Kickr IV provides 6.5 watts of regulated power that can help charge phones, digital cameras, and other small USB enabled devices. The Kickr IV is ideal for outdoor activities such as camping, hiking and mountain climbing as well as daily city use. To complement the Kickr IV, we also released the Jumpr series of portable power banks in December of 2012. The Jumpr series provides a compact power storage solution for those who need to recharge their portable electronics while on the go.

During 2013, the EnerPlex brand rapidly expanded with the addition of two new product series as well as over fifteen new products. In 2013, we introduced further additions to the Jumpr line of portable power banks; releasing the Jumpr Mini and Jumpr Stack in August and the Jumpr Max in September. The latest additions to the Kickr line of portable solar chargers, the Kickr I and Kickr II, were introduced in August at the Outdoor Retailer show. Furthermore, in October 2013, we released our first series of solar integrated backpacks, the EnerPlex Packr™. The Packr is a functional backpack ideal for charging mobile electronic devices while on the go. Also in October of 2013, we introduced the Surfr battery and solar case for the Samsung Galaxy S® 4, and in December, we introduced the Surfr battery and solar case for Apple's iPhone® 5. To complement our flagship product lines, we added an assortment of accessories, all of which can be integrated into the EnerPlex ecosystem of products; such as the LED wand which can be easily plugged into a Jumpr power bank to provide hours of light, or the Travel Adaptor, which enables consumers to charge up their Jumpr power banks from a traditional outlet anywhere in the world.

Beginning in 2013, we aggressively pursued new distribution channels for the EnerPlex brand; these activities have led to placement in a variety of high-traffic ecommerce venues such as www.amazon.com, www.walmart.com, www.brookstone.com, www.newegg.com, as well as many others including our own e-commerce platform at www.goenerplex.com. The April 2013 placement of EnerPlex products at Fry's Electronics, a US West Coast consumer electronics retailer, represented the company's first domestic retail presence; EnerPlex products were carried in all of Fry's 34 superstores across 9 states.

Throughout 2014, EnerPlex released multiple additions to the Jumpr line of products: including the Jumpr Stack 3, 6 and 9; innovative batteries equipped with tethered micro-USB and Apple Lightning cables with a revolutionary Stack and Charge design, enabling batteries to be charged simultaneously when they are placed on top of one another. Also released in 2014 were the Jumpr Slate series, products which push the boundaries of how thin batteries can be; the Jumpr Slate 10k, at less than 7mm thick was the thinnest lithium polymer battery available when it was released. The Jumpr Slate 5k and 5k Lightning each come with a tethered micro-USB and Lightning cable respectively; freeing consumers from worrying about toting extra cables with them while on the move.

At Outdoor Retailer 2014, EnerPlex debuted the Generatr Series. The Generatr 1200 and Generatr 100 are lithium-ion based, large format batteries. Lighter and smaller than competitors, the Generatr Series are targeted for consumers who require high-capacity, high-output batteries which remain ultra-portable. Also debuted at Outdoor Retailer was the Commandr 20, a high output solar charger designed specifically to integrate with and charge the Generatr series, allowing consumers to stay out longer without needing to charge their Generatr batteries from a traditional power source. In August 2014, the Kickr II+ and IV+ were also announced, these products represent another evolution in EnerPlex's line of solar products; integrated with a 500mAh battery the Kickr II+ and IV+ are able to provide a constant flow of power even when there are intermittent disruptions in sunlight.

During 2015, we reached an agreement with EVINE Live, one of the premier home shopping networks with TV programming that reaches over 87 million US homes to begin selling EnerPlex products during their broadcasts. EnerPlex launched the Generatr S100 and select other products exclusively with EVINE, EnerPlex also launched the Generatr 1200 launched exclusively with EVINE for a limited period. Also during 2015, EnerPlex expanded its relationship with The Cellular Connection to include over 450 Verizon Wireless Premium Retail Stores; launched its products with two world recognized retailers; The Sports Authority and Cabela's; and launched its products with GovX; the premier online shopping destination for Military, Law Enforcement and Government agencies. Internationally, EnerPlex products became available in the United Kingdom via the brand's launch with 172 Maplin's stores throughout the country.

In 2016, EnerPlex launched the new emergency sales vertical, partnering with Emergency Preparedness eCommerce leader, Emergency Essentials, and we announced new breakthroughs in the Company's line of high-voltage solar products, designed specifically for high-altitude and space markets. Also during the first quarter of 2016, the Company announced the launch of select products on the GSA Advantage website; allowing Federal employees, including members of all branches of the US Military, to directly purchase Ascent and EnerPlex products including: the MilPak E, Commandr 20, Kickr 4 and WaveSol solar modules.

In January 2017, Ascent was awarded a contract to supply high-voltage SuperLight thin-film CIGS PV blankets. These 50W, fully laminated, flexible blankets were manufactured using a new process that was optimized for high performance in near-space conditions at elevated temperatures, and are custom designed for easy modular integration into series and parallel configurations to achieve the desired voltage and current required for such application.

In February 2017 Ascent announced the discontinuation of our EnerPlex consumer business by disposing of the EnerPlex brand, and related intellectual properties and trademarks, to our battery product supplier, Sun Pleasure Co. Limited ("SPCL"). This transaction was completed in an effort to better allocate our resources and to continue to focus on our core strength in the high-value specialty PV market. Following the transfer, Ascent will no longer be producing or selling Enerplex-branded consumer products. Ascent will focus on its photovoltaic business and will supply solar PV products to SPCL, supporting the continuous growth of EnerPlex™ with Ascent's proprietary and award-winning thin-film solar technologies and products.

During the third quarter of 2017, Ascent Solar was selected by Energizer to develop and supply solar panels for their PowerKeep line of solar products, and in November 2017, Ascent introduced the next generation of our USB-based portable power systems with the XD™ series. The first product to be introduced was the XD-12 which, like previous products, is a folding, lightweight, easily stowable, PV system with USB power regulation. Unique to this generation of PV portable power is more PV power (12 Watts) and a 2.0 Amp smart USB output to enable the XD-12 to charge most smartphones, tablets, and USB-enabled devices as fast as a wall outlet. The enhanced smart USB circuit determines the maximum power the device is able to receive, and ensures the best possible charging performance directly from the sun.

Also in 2017, for a space customer, Ascent manufactured a new micro-module, approximately 12.8mm x 50mm (0.5in x 2.0in) in size that is ideal for both laboratory-scale environmental testing, and for subsequent integration into flight experiments.

In February 2018, the Company introduced the second product in our XD™ series. Delivering up to 48 Watts of solar power, the durable and compact Ascent XD-48 Solar Charger is the ideal solution for charging many portable electronics and off-grid power systems. The XD-48's versatility allows it to charge both military and consumer electronics directly from the sun wherever needed. Like the XD-12, the XD-48 has a compact and portable design, and its rugged, weather-resistant construction withstands shocks, drops, damage and even minor punctures to power through the harshest conditions.

We continue to design and manufacture PV integrated consumer electronics as well as portable power applications for commercial and military users. Due to the high durability enabled by the monolithic integration employed by our technology, the capability to customize modules into different form factors and the industry leading light weight and flexibility provided by our modules, we believe that the potential applications for our products are numerous.

Commercialization and Manufacturing Strategy

Our proprietary manufacturing process deposits multiple layers of materials, including a thin film of highly efficient Copper-Indium-Gallium-diSelenide (“CIGS”) semiconductor material, on a flexible, lightweight, plastic substrate using a roll-to-roll manufacturing process and then laser patterns the layers to create interconnected PV cells, or PV modules, in a process known as monolithic integration. Our monolithic integration techniques enable us to form complete PV modules with less or no costly back end assembly of intercell connections. Traditional PV manufacturers assemble PV modules by bonding or soldering discrete PV cells together. This manufacturing step typically increases manufacturing costs and at times proves detrimental to the overall yield and reliability of the finished product. By reducing or eliminating this added step using our proprietary monolithic integration techniques, we believe we can achieve cost savings in, and increase the reliability of, our PV modules. We believe our technology and manufacturing process, which results in a lighter, flexible module package, provides us with unique market opportunities relative to both the crystalline silicon (“c-Si”) based PV manufacturers that currently lead the PV market, as well as other thin-film PV manufacturers that use substrate materials such as glass, stainless steel or other metals that can be heavier and more rigid than plastics.

Currently, we are producing OEM and consumer oriented products focusing on charging devices powered by our solar modules. Products in these markets are priced based on the overall value proposition rather than a commodity-style price per watt basis. We continue to develop new consumer products and we have adjusted our utilization of our equipment to meet our near term forecast sales. We plan to continue the development of our current PV technology to increase module efficiency, improve our manufacturing tooling and process capabilities and reduce manufacturing costs. We also plan to continue to take advantage of research and development contracts to fund a portion of this development.

Related Party Activity

On February 2, 2012, we announced the appointment of Victor Lee as President and Chief Executive Officer. Mr. Lee has served on our Board since November 2011 and is currently the managing director of Tertius Financial Group Pte Ltd ("TFG").

TFG is a Singapore based entity controlled and 50% owned by Ascent’s President & CEO, Victor Lee, and owns approximately 3% of the Company's outstanding shares at December 31, 2017.

On August 29, 2016, the Company entered into a note purchase agreement with Tertius Financial Group Pte. Ltd. ("TFG”) for the private placement of $330,000 of the Company’s original issue discount notes with an original maturity date of November 29, 2016. The notes bear interest of 6% per annum and principal and interest on the notes are payable upon maturity. The notes are unsecured and not convertible into equity shares of the Company.

On December 6, 2016, the Company issued a new $600,000 original issue discount note to TFG in exchange for (i) $200,000 of additional gross proceeds and (ii) cancellation of the existing outstanding $330,000 note. The new TFG note bears interest at a rate of 6% per annum and matures on December 31, 2017. Principal and interest on the new TFG note is payable at maturity. Following the transaction, the outstanding balance of the new note was $602,000 (including accrued and unpaid interest) with a discount of $60,000.

On January 19, 2017, the Company issued 333,333,333 shares of unregistered common stock in a private placement to TFG pursuant to a Securities Purchase Agreement (the “SPA”).

Pursuant to the SPA, the Company issued the 333,333,333 shares to TFG in exchange for cancellation of its $600,000 promissory note (including accrued interest of approximately $4,340) that was issued by the Company on December 6, 2016. The SPA does not provide any registration rights for the shares issued to TFG.

Significant Trends, Uncertainties and Challenges

We believe the significant trends, uncertainties and challenges that directly or indirectly affect our financial performance and results of operations include:

- Our ability to generate customer acceptance of and demand for our products;

- Successful ramping up of commercial production on the equipment installed;
- Our products are successfully and timely certified for use in our target markets;
- Successful operating of production tools to achieve the efficiencies, throughput and yield necessary to reach our cost targets;

- The products we design are saleable at a price sufficient to generate profits;
- Our ability to raise sufficient capital to enable us to reach a level of sales sufficient to achieve profitability on terms favorable to us;
- Effective management of the planned ramp up of our domestic and international operations;
- Our ability to successfully develop and maintain strategic relationships with key partners, including OEMs, system integrators, distributors, retailers and e-commerce companies, who deal directly with end users in our target markets;
- Our ability to maintain the listing of our common stock on the OTCQB Venture Market;
- Our ability to implement remediation measures to address material weaknesses in internal control;
- Our ability to achieve projected operational performance and cost metrics;
- Our ability to enter into commercially viable licensing, joint venture, or other commercial arrangements; and
- Availability of raw materials.

Basis of Presentation: The accompanying consolidated financial statements have been derived from the accounting records of Ascent Solar Technologies, Inc., Ascent Solar (Asia) Pte. Ltd., and Ascent Solar (Shenzhen) Co., Ltd. (collectively, "the Company") as of December 31, 2017 and December 31, 2016, and the results of operations for the years ended December 31, 2017 and 2016. Ascent Solar (Shenzhen) Co., Ltd. is wholly owned by Ascent Solar (Asia) Pte. Ltd., which is wholly owned by Ascent Solar Technologies, Inc. All significant inter-company balances and transactions have been eliminated in the accompanying consolidated financial statements.

Significant Accounting Policies

Related Party Transactions: One of the Company's named shareholders is Tertius Financial Group Pte Ltd of which Mr. Victor Lee, President and Chief Executive Officer of the Company, is Managing Director and 50% shareholder. Please refer to Note 11 for further information on transactions with Tertius Financial Group.

Revenue Recognition:

Product revenue - We generated product revenues of $642 thousand for the year ended December 31, 2017. Product revenue is generated from commercial sales of flexible PV modules and PV integrated consumer electronics. Products are sold through our own website and through the use of online retailers and distributors. Revenue is recognized as products are shipped or delivered and title has transferred to the customer. In certain instances, we have agreed to refund a portion of the purchase price to customers if we decrease our standard retail price. We estimate the effect of this price protection and record the difference as a reduction of revenue at the time of sale. We also, in certain instances, have provided customers with a right of return provision. In these instances, we defer the recognition of revenues until the provision period has expired. Estimated costs of returns and allowances, other than those specifically pertaining to a right of return provision, and discounts are accrued as a reduction to sales when revenue is recognized.

Some of our distributor relationships allow for discounts to be taken for prompt payment and to fund co-op advertising costs. These discounts are taken as credits against outstanding receivable balances and recorded net of revenue. Large co-op advertising campaigns, funded either by cash payments by us or as credits against outstanding receivables, are recorded as advertising expense included in selling, general and administrative costs if, and only if, the following criteria are met: 1) we received an identifiable benefit (goods or services) in exchange for the consideration, with the identifiable benefit being sufficiently separable from the distributor's purchase of our products; and 2) we can reasonably estimate the fair value of the identifiable benefit. If the amount of consideration paid by us exceeds the estimated fair value of the benefit received, that excess amount shall be characterized as a reduction of revenue.

Government contracts revenue - Revenue from governmental research and development contracts is generated under terms that are cost plus fee or firm fixed price. Revenue from cost plus fee contracts is recognized as costs are incurred on the basis of direct costs plus allowable indirect costs and an allocable portion of the fixed fee. Revenue from firm fixed price contracts is recognized under the percentage-of-completion method of accounting, with costs and estimated profits included in contract revenue as work is performed. If actual and estimated costs to complete a contract indicate a loss, provision is made currently for the loss anticipated on the contract. There was no revenue associated with government contracts recorded in 2017 and approximately $48,000 recorded in 2016.

Convertible Preferred Stock: The Company evaluates its preferred stock instruments under FASB ASC 480, *"Distinguishing Liabilities from Equity"* to determine the classification, and thereby the accounting treatment, of the instruments. Please refer to Notes 16, 17, 18, 19, 21, 21, and 22 for further discussion on the classification of each instrument.

Derivatives: The Company evaluates its financial instruments under FASB ASC 815, *"Derivatives and Hedging"* to determine whether the instruments contain an embedded derivative. When an embedded derivative is present, the instrument is evaluated for a fair value adjustment upon issuance and at the end of every period. Any adjustments to fair value are treated as gains and losses in fair values of derivatives and are recorded on the Statement of Operations. Please refer to Notes 10, 12, 13, 14, 15, 16, 17, 18, 19, 20, and 21 for further discussion on the embedded derivatives of each instrument.

Inventories: All inventories are stated at the lower of cost or market, with cost determined using the weighted average method. Inventory balances are frequently evaluated to ensure that they do not exceed net realizable value. The computation for net realizable value takes into account many factors, including expected demand, product life cycle and development plans, module efficiency, quality issues, obsolescence and others. Management's judgment is required to determine reserves for obsolete or excess inventory. If actual demand and market conditions are less favorable than those estimated by management, additional inventory write downs may be required. The majority of our inventory is raw materials which have a long life cycle; obsolescence is not a significant factor in their valuation.

Due to the sale of the EnerPlex brand and the re-purposing of our work-in-process inventory, we are unable to estimate the recoverability of all of our work-in process inventory values, resulting in a lower-cost-to-market analysis and reserve for impairment. An expense of approximately $363,000 was recorded to inventory impairment costs for the year ended December 31, 2017, as a result of the lower of cost or market analysis. There were no lower of cost or market adjustments during the year ended December 31, 2016.

Impairment of Long-lived assets: We analyze our long-lived assets (property, plant and equipment) and definitive-lived intangible assets (patents) for impairment, both individually and as a group, whenever events or changes in circumstances indicate the carrying amount of the assets may not be recoverable. Events that might cause impairment would include significant current period operating or cash flow losses associated with the use of a long-lived asset or group of assets combined with a history of such losses, significant changes in the manner of use of assets and significant negative industry or economic trends. An undiscounted cash flow analysis is calculated to determine if an impairment exists. If an impairment is determined to exist, any related loss is calculated using the difference between the fair value and the carrying value of the assets. During the years ended December 31, 2017 and 2016, we did not incur impairments of our manufacturing facilities and equipment.

Research, Development and Manufacturing Operations Costs: Research, development and manufacturing operations expenses were $4.8 million and $6.6 million for the years ended December 31, 2017 and 2016, respectively. Research, development and manufacturing operations expenses include: 1) technology development costs, which include expenses incurred in researching new technology, improving existing technology and performing federal government research and development contracts, 2) product development costs, which include expenses incurred in developing new products and lowering product design costs, and 3) pre-production and production costs, which include engineering efforts to improve production processes, material yields and equipment utilization, and manufacturing efforts to produce saleable product. Research, development and manufacturing operations costs are expensed as incurred, with the exception of costs related to inventoried raw materials, work-in-process and finished goods, which are expensed as Cost of revenue as products are sold.

Share-Based Compensation: We measure and recognize compensation expense for all share-based payment awards made to employees, officers, directors, and consultants based on estimated fair values. The value of the portion of the award that is ultimately expected to vest is recognized as expense over the requisite service period in our statements of operations included herein. Share-based compensation is based on awards ultimately expected to vest, reduced by estimated forfeitures. Forfeitures are estimated at the time of grant and revised, as necessary, in subsequent periods if actual forfeitures differ from those estimates. For purposes of determining estimated fair value of share-based payment awards on the date of grant, we use the Black-Scholes option-pricing model ("Black-Scholes Model") for option awards. The Black-Scholes Model requires the input of highly subjective assumptions. Because our employee stock options may have characteristics significantly different from those of traded options, and because changes in the subjective input assumptions can materially affect the fair value estimate, in management's opinion, the existing models may not provide a reliable single measure of the fair value of our employee stock options. Management will continue to assess the assumptions and methodologies used to calculate estimated fair value of share-based compensation. Circumstances may change and additional data may become available over time, which result in changes to these assumptions and methodologies, which could materially impact our fair value determination. We estimate the fair value of our restricted stock awards at our stock price on the grant date.

The accounting guidance for share-based compensation may be subject to further interpretation and refinement over time. There are significant differences among option valuation models, and this may result in a lack of comparability with other companies that use different models, methods and assumptions. If factors change and we employ different assumptions in the accounting for share-based compensation in future periods, or if we decide to use a different valuation model, the compensation expense we record in the future may differ significantly from what we have recorded in the current period and could materially affect our loss from operations, net loss and net loss per share.

Use of Estimates: The preparation of financial statements in conformity with U.S. generally accepted accounting principles ("GAAP") requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Recently Issued Accounting Standards

In May 2014, the FASB issued ASU No. 2014-09, *Revenue from Contracts with Customers (Topic 606)*. The update will establish a comprehensive revenue recognition standard for virtually all industries in GAAP. ASU 2014-09 will change the amount and timing of revenue and cost recognition, implementation, disclosures and documentation. In August 2015, the FASB issued ASU No. 2015-14, *Revenue from Contracts with Customers (Topic 606): Deferral of Effective Date.* The amendments in ASU 2015-14 defer the effective date of ASU 2014-09 for all entities by one year. ASU 2014-09 is now effective for the Company in fiscal year 2018. The Company has evaluated ASU 2014-09, and does not believe it will have a material effect on the Company's consolidated financial statements.

In February 2016, the FASB issued ASU No. 2016-02, *Leases (Topic 842)*. ASU 2016-02 requires lessees to recognize all leases, including operating leases, on the balance sheet as a lease asset or lease liability, unless the lease is a short-term lease. ASU 2016-02 also requires additional disclosures regarding leasing arrangements. ASU 2016-02 is effective for interim periods and fiscal years beginning after December 15, 2018, and early application is permitted. The Company continues to evaluate the impact, that the adoption of this guidance will have on its consolidated financial statements.

In March 2016, the FASB issued ASU 2016-09, *Improvements to Employee Share-Based Payment Accounting*, which simplifies several aspects of the accounting for share-based payment transactions, including 1) accounting for income taxes, 2) classification of excess tax benefits in the statement of cash flows, 3) forfeitures, 4) minimum statutory tax withholding requirements, 5) cash flow classification of employee taxes withheld in the form of shares, 6) the practical expedient for estimating the expected term, and 7) intrinsic value. The guidance is effective for annual reporting periods beginning after December 15, 2016, and interim periods within those annual periods. The implementation of ASU 2016-09 did not have a material effect on the Company's consolidated financial statements.

In May 2017, the FASB issued ASU No. 2017-09, Compensation - Stock Compensation (Topic 718). ASU 2017-09 provides guidance about which changes to the terms or conditions of a share-based payment award require an entity to apply modification accounting in Topic 718. ASU 2017-09 is effective for interim periods and fiscal years beginning after December 15, 2017, and early application is permitted. The Company continues to evaluate the impact, if any, that the adoption of this guidance will have on its consolidated financial statements, but does not expect the effect, if any, to be material.

In July 2017, the FASB issued ASU No. 2017-11 Part I, Earnings Per Share (Topic 260), Distinguishing Liabilities from *Equity (Topic 480), Derivatives and Hedging (Topic 815)*. ASU 2017-11 Part I changes the classification analysis of certain equity linked financial instruments with down round features. ASU 2017-11 Part I is effective, for public business entities, for interim periods and fiscal years beginning after December 15, 2018, and early application is permitted. The Company is currently evaluating the impact, if any, that the adoption of this guidance will have on its consolidated financial statements.

Results of Operations

Comparison of the Years Ended December 31, 2017 and 2016

Revenues. Our revenues were $642,000 for the year ended December 31, 2017 compared to $1,747,000 for the year ended December 31, 2016, a decrease of $1,105,000. The following factors contributed to this decrease:

1. Net product revenues were $642,000 for the year ended December 31, 2017 compared to $1,700,000 for the year ended December 31, 2016, a decrease of $1,058,000. The decrease in product sales is largely the result of our sale of the Enerplex brand of products.

2. The Company did not have any revenues attributable to government research and development contracts during the year ended December 31, 2017, compared to $48,000 during the year ended December 31, 2016.

Cost of revenues. Our Cost of revenues for the year ended December 31, 2017 was $2,815,000 compared to $5,844,000 for the year ended December 31, 2016, a decrease of $3,029,000. The decrease in cost of revenues is mainly due to the decrease in materials and labor costs as a result of a decrease in production for the year ended December 31, 2017 compared to 2016. Cost of revenues for the year ended December 31, 2017 is comprised of materials and freight of $883,000, direct labor of $49,000, and overhead of $1,883,000. Management believes our factory is currently significantly under-utilized, and a substantial increase in revenue would result in marginal increases to Direct Labor and Overhead included in the Cost of revenues. As such management's focus going forward is to improve gross margin through increased sales and improved utilization of our factory. We are currently pursuing high-value PV markets.

Research, development and manufacturing operations costs. Research, development and manufacturing operations costs were $4,821,000 for the year ended December 31, 2017 compared to $6,627,000 for the year ended December 31, 2016, a decrease of $1,806,000. Research, development and manufacturing operations costs include costs incurred for product development, pre-production and production activities in our manufacturing facility. Research, development and manufacturing operations costs also include costs related to technology development and governmental contracts. The following factors contributed to the decrease in research, development, and manufacturing operations expenses during the year ended December 31, 2017:

1. Personnel and facility related expenses decreased approximately $1,675,000 as compared to the year ended December 31, 2016. The decrease in personnel related costs was primarily due to a reduction in headcount.

2. Consulting and contract services decreased approximately $13,000 compared to the year ended December 31, 2016. The year to year decrease in expense was primarily attributed to the reduced number of contractors during the year ended December 31, 2017.

3. Materials and equipment related expenses decreased approximately $119,000 compared to the year ended December 31, 2016. The decrease in expense was primarily due to the reserve against WIP inventory as a result of our transition from the retail consumer electronics market to high-value PV markets.

Inventory impairment costs. Due to the sale of the EnerPlex brand and the re-purposing of our work-in-process inventory, we are unable to estimate the recoverability of all of our work-in process inventory values, resulting in a lower-cost-to-market analysis and reserve for impairment. An expense of approximately $363,000 was recorded to inventory impairment costs for the year ended December 31, 2017.

Selling, general and administrative. Selling, general and administrative expenses were $5,598,000 for the year ended December 31, 2017, compared to $10,305,000 for the year ended December 31, 2016, a decrease of $4,707,000. The following factors contributed to the decrease in selling, general, and administrative expenses during 2017:

1. Personnel and facility related costs decreased approximately $1,960,000 during the year ended December 31, 2017, compared to the year ended December 31, 2016. The overall decrease in personnel related costs was primarily due a lower headcount for the year ended December 31, 2017.

2. Marketing and related expenses decreased approximately $1,975,000 during the year ended December 31, 2017, compared to the year ended December 31, 2016. The decrease in Marketing and related expenses is due to reduced marketing, advertising, and promotional activities during the year ended December 31, 2017, which is the direct result of changing our main focus from the retail consumer electronics market to higher-value PV markets.

3. Consulting and contract services decreased approximately $252,000 during the year ended December 31, 2017, compared to the year ended December 31, 2016. The decrease was a result of decreased consulting expenses related to our financing efforts.

4. Legal expenses decreased approximately $487,000 during the year ended December 31, 2017, compared to the year ended December 31, 2016. The primary reasons for the decrease is due to reductions in both legal expenses related to our patents and general legal expenses related to financing efforts.

5. Bad debt expense decreased approximately $122,000 during the year ended December 31, 2017, compared to the year ended December 31, 2016. This decrease is due to payments and settlements against existing reserves which were offset by additional reserves for customers whose accounts were greater than 120 days overdue.

6. Public company expenses decreased approximately $85,000 during the year ended December 31, 2017, compared to the year ended December 31, 2016. This decrease is primarily due to a decrease in public relations expense.

7. Settlement expenses for the year ended December 31, 2017 were approximately $174,000. These expenses consisted of a settlement of $23,000 related to an alleged Proposition 65 violation and aggregate settlements of $151,000 with former EnerPlex customers regarding a return of product.

Depreciation expense. Depreciation expense for the years ended December 31, 2017 and 2016 was $1,194,000 and $3,600,000, respectively. The decrease of $2,406,000 was mainly the result of property, plant and equipment being fully depreciated during the year ended December 31, 2017, offset slightly by amortization of new capitalized intellectual property.

Other Income/(Expense), net. Other Income/(Expense) was $4,412,075 net expense for the year ended December 31, 2017, compared to $14,222,231 net expense for the year ended December 31, 2016, a decrease of $9,810,156. The following factors contributed to the increase in other income/(expense), net during 2017:

1. Interest Expense decreased $1,384,000 compared to 2016. The decrease is primarily due to an decrease of non-cash interest expense and amortization of debt discounts related to convertible and promissory notes and Preferred Stock. The non-cash portion of interest expense for the year ended December 31, 2017 was $5,147,000.

2. Warrant expense increased by approximately $346,000 as compared to the year ended December 31, 2016. This increase is due to the issuance of warrants during the year ended December 31, 2017, related to redemption agreements, settlement agreements, and the engagement of outside professional services.

3. Other income, net increased $492,000. This increase is comprised of an increase in gain on sale of assets of $1,128,000, primarily related to the transfer of the EnerPlex IP, offset by induced conversion costs of $636,000 on several of the financial instruments.

4. Gains and losses on change in fair value of derivatives and on extinguishment of liabilities, net was a gain of $1,878,000 for the year ended December 31, 2017, an increase of $8,280,000 compared to the net loss of $6,402,000 for the year ended December 31, 2016. The change in this non-cash item is the result of an increase of $3,487,000 in the gain on change in the fair value of our embedded derivative instruments during 2017, and a decrease of $4,793,000 in the loss on extinguishment of liabilities related to conversions of certain convertible notes and preferred stock in the same comparative periods.

Net Loss. Our net loss was $18,560,000 for the year ended December 31, 2017, compared to a Net Loss of $38,851,000 for the year ended December 31, 2016, a decrease in Net Loss of $20,291,000. The decrease in Net Loss for the year ended December 31, 2017 can be summarized in variances in significant account activity as follows:

		(Increase) decrease in Net Loss For the Year Ended December 31, 2017 Compared to the Year Ended December 31, 2016
Revenues	$	(1,105,000)
Cost of Revenue		3,029,000
Research, development and manufacturing operations		
Materials and Equipment Related Expenses		119,000
Personnel and Facility Related Expenses		1,675,000
Consulting and Contract Services		13,000
Inventory impairment costs		(363,000)
Selling, general and administrative expenses		
Personnel, Administrative, and Facility Related Expenses		1,960,000
Marketing Related Expenses		1,975,000
Legal Expenses		487,000
Public Company Costs		85,000
Bad Debt Expense		122,000
Consulting and Contract Services		252,000
Settlement Costs		(174,000)
Depreciation and Amortization Expense		2,406,000
Other Income/Expense		
Interest Expense		1,384,000
Other Income/Expense		492,000
Warrant Expense		(346,000)
Non-Cash Change in Fair Value of Derivative Liabilities and Gain/Loss on Extinguishment of Liabilities, net		8,280,000
Decrease to Net Loss	$	20,291,000

Liquidity and Capital Resources

During the years ended December 31, 2017 and 2016, the Company entered into multiple financing agreements to fund operations. Further discussion of these transactions can be found in Notes 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, and 22.

We have continued PV production at our manufacturing facility. We do not expect sales revenue and cash flows will be sufficient to support operations and cash requirements until we have fully implemented our new consumer products strategy. Changes in the level of expected operating losses, the timing of planned capital expenditures or other factors may negatively impact cash flows and reduce current cash and investments faster than anticipated. During 2017 we used $12.6 million in cash for operations, or an average of $3.1 million per quarter. During the fourth quarter of 2017 we used $1.9 million in cash for operations. Our primary significant long term obligation consists of a note payable of $5.5 million to a financial institution secured by a mortgage on our headquarters and manufacturing building in Thornton, Colorado. Total payments of $0.7 million, including principal and interest, will come due in 2017.

Additional projected product revenues are not anticipated to result in a positive cash flow position for the year 2018 overall. As such, cash liquidity sufficient for the year ending December 31, 2018 will require additional financing. Subsequent to the year ended December 31, 2017 the Company completed certain other financing transactions. Please refer to Note 30 for further information on these transactions.

The Company continues to accelerate sales and marketing efforts related to its PV strategy by focusing on the Company's propriety technology. The Company has begun activities related to securing additional financing through strategic or financial investors, but there is no assurance the Company will be able to raise additional capital on acceptable terms or at all. If the Company's revenues do not increase rapidly, and/or additional financing is not obtained, the Company will be required to significantly curtail operations to reduce costs and/or sell assets. Such actions would likely have an adverse impact on the Company's future operations. As a result of the Company's recurring losses from operations, and the need for additional financing to fund its operating and capital requirements, there is uncertainty regarding the Company's ability to maintain liquidity sufficient to operate its business effectively, which raises substantial doubt as to the Company's ability to continue as a going concern. Please refer to Note 4 for further discussion.

Statements of Cash Flows Comparison of the Years Ended December 31, 2017 and 2016

For the year ended December 31, 2017, our cash used in operations was $12.6 million compared to $16.9 million for the year ended December 31, 2016, a decrease of $4.3 million. The decrease is primarily the result of reduced expenses from operations during the current year. For the year ended December 31, 2017, investing activities resulted in cash provided of $0.1 million compared to investing activities using $0.2 million in cash during the year ended December 31, 2016. This improvement was the result of proceeds of $0.2 million on the sale of our Enerplex intellectual property, and reduced spending on capital assets and patents. During the year ended December 31, 2017, negative operating cash flows of $12.6 million were funded through $5.5 million in new debt issuances and $9.0 million from the issuance of stock, offset by repayments on debt of approximately $2.1 million.

Contractual Obligations

The following table presents our contractual obligations as of December 31, 2017. Our long-term debt obligation is related to our building loan and includes both principal and interest. Our purchase obligations include orders for equipment, inventory and operating expenses.

		Payments Due by Year (in thousands)			
Contractual Obligations	**Total**	**Less Than 1 Year**	**1-3 Years**	**3-5 Years**	**More Than 5 Years**
Long-term debt obligations	$ 7,702	$ 694	$ 2,081	$ 2,081	$ 2,846
Operating lease obligations	87	59	14	14	—
Purchase obligations	443	443	—	—	—
Total	$ 8,232	$ 1,195	$ 2,095	$ 2,095	$ 2,846

Off Balance Sheet Transactions

As of December 31, 2017, we did not have any off balance sheet arrangements as defined in Item 303(a)(4)(ii) of Regulation S-K.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Foreign Currency Exchange Risk

Historically, we have purchased manufacturing equipment internationally, which exposes us to foreign currency risk.

From time to time we enter into foreign currency fair value hedges utilizing forward contracts designed to match scheduled contractual payments to equipment suppliers. Our objective is to fix the dollar amount of our foreign currency denominated manufacturing equipment purchases at the time of order. Although our hedging activity is designed to fix the dollar amount to be expended, the asset purchased is recorded at the spot foreign currency rate in effect as of the date of the payment to the supplier. The difference between the spot rate and the forward rate has been reported as gain or loss on forward contract. We cannot accurately predict future exchange rates or the overall impact of future exchange rate fluctuations on our business, results of operations and financial condition. All forward contracts entered into by us have been settled on the contract settlement dates, the last of which was settled in December 2009. We held no forward contracts during the years ended December 31, 2017 and 2016.

We hold no significant funds and have no future obligations denominated in foreign currencies as of December 31, 2017.

Although our reporting currency is the U.S. Dollar, we may conduct business and incur costs in the local currencies of other countries in which we may operate, make sales and buy materials. As a result, we are subject to currency translation risk. Further, changes in exchange rates between foreign currencies and the U.S. Dollar could affect our future net sales and cost of sales and could result in exchange losses.

Interest Rate Risk

Our exposure to market risks for changes in interest rates relates primarily to our cash equivalents and investment portfolio. As of December 31, 2017, our cash equivalents consisted only of operating accounts held with financial institutions. From time to time, we hold restricted funds, money market funds, investments in U.S. government securities and high quality corporate securities. The primary objective of our investment activities is to preserve principal and provide liquidity on demand, while at the same time maximizing the income we receive from our investments without significantly increasing risk. The direct risk to us associated with fluctuating interest rates is limited to our investment portfolio, and we do not believe a change in interest rates will have a significant impact on our financial position, results of operations, or cash flows.

Credit Risk

From time to time, we hold certain financial and derivative instruments that potentially subject us to credit risk. These consist primarily of cash, cash equivalents, restricted cash, investments, and forward foreign currency option contracts. We are exposed to credit losses in the event of nonperformance by the counter parties to our financial and derivative instruments. We place cash, cash equivalents, investments and forward foreign currency option contracts with various high quality financial institutions, and exposure is limited at any one institution. We continuously evaluate the credit standing of our counter party financial institutions.

Item 8. Financial Statements and Supplementary Data

The Financial Statements and Supplementary Data required by this item are included in Part IV, Item 15(a)(1) and are presented beginning on Page F-1.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

On November 15, 2017, following the completion of the merger with Moss Adams, LLP, Hein & Associates, LLP ("Hein") informed Ascent Solar Technologies, Inc. ("ASTI" or the "Company") of its resignation as the Company's independent registered public accounting firm, effective immediately, which resignation was accepted by the audit committee of ASTI's board of directors on November 16, 2017.

The reports of Hein on the financial statements of the Company for the past two fiscal years ended December 31, 2016 and 2015 did not contain an adverse opinion or disclaimer of opinion, nor were they qualified or modified as to uncertainty, audit scope or accounting principles, with the exception of providing a qualification as to the Company's ability to continue as a going concern in the Company's financial statements for the fiscal years ended December 31, 2016 and December 31, 2015.

The decision to accept the resignation of Hein was approved by the Company's audit committee and board of directors.

Except as described below, during 2015 and 2016, the subsequent interim periods thereto, and through November 15, 2017, the date of Hein's resignation, (a) the Company and Hein had no disagreements on any matter of accounting principles or practices, financial statement disclosure, or auditing scope or procedure, which disagreements, if not resolved to the satisfaction of Hein, would have caused Hein to make reference to the matter in their reports, and (b) there were no "reportable events" as described in Item 304(a)(1)(v) of Regulation S-K.

In its quarterly report to the audit committee dated August 15, 2017, Hein noted that the Company's management and Hein had initially disagreed over the accounting for conversions of the Company's Series K preferred stock into common stock. Ultimately, the Company's management agreed with the accounting treatment proposed by Hein with respect to this issue, which was reflected in the Company's financial statements filed in its Form 10-Q for the period ended June 30, 2017. Accordingly, the Company and Hein consider this matter to be resolved. The Company's audit committee did discuss the subject matter of this disagreement with Hein.

The Company has authorized Hein to fully respond to the inquiries of any successor accountant concerning the subject matter of any disagreements.

On December 14, 2017, the Company's audit committee and board of directors approved the engagement of Haynie & Company ("Haynie") as our new independent registered public accounting firm to audit and review the Company's financial statements.

During 2015, 2016, and 2017, the subsequent interim periods thereto, and through the filing date of this report neither the Company, nor someone on its behalf, has consulted Haynie regarding either (i) the application of accounting principles to a specified transaction, either completed or proposed, or the type of audit opinion that might be rendered on the Company's financial statements, and no written report or oral advice was provided to the Company that Haynie concluded was an important factor considered by the Company in reaching a decision as to the accounting, auditing or financial reporting issue; or (ii) any matter that was the subject of a disagreement or reportable event (within the meaning of Item304(a) of Regulation S-K and Item304(a)(1)(v) of Regulation S-K, respectively).

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures designed to ensure that information required to be disclosed in our reports filed or submitted under the Securities Exchange Act of 1934, as amended (the "Exchange Act") is recorded, processed, summarized and reported within the time periods specified in Securities and Exchange Commission rules and forms. Our disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed in our reports filed under the Exchange Act is accumulated and communicated to management as appropriate to allow timely decisions regarding required disclosures. Our management conducted an evaluation required by Rules 13a-15 and 15d-15 under the Exchange Act of the effectiveness of our disclosure controls and procedures as defined in Rules 13a-15 and 15d-15 under the Exchange Act as of December 31, 2017. Based on this evaluation, our management concluded the design and operation of our disclosure controls and procedures were effective as of December 31, 2017.

Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. Our system of internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles in the United States of America and includes those policies and procedures that:

- pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of our assets;
- provide reasonable assurance transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and our receipts and expenditures are being made only in accordance with authorizations of our management and directors; and
- provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on our financial statements.

Under the supervision of the Audit Committee of the Board of Directors and with the participation of our management, including our Chief Executive Officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting using the criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on this evaluation, our management concluded our internal control over financial reporting was effective as of December 31, 2017. Our management reviewed the results of its assessment with the Audit Committee.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

A material weakness is a deficiency, or combination of deficiencies, in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of the Company’s annual or interim financial statements will not be prevented or detected on a timely basis.

Material Weakness Identified in 2016

Based on our assessment and the criteria used, management concluded that our internal control over financial reporting as of December 31, 2016 was not effective due to the material weaknesses described as follows:

- The Company was understaffed and did not have sufficiently trained resources with the technical expertise to research and account for the Company's complex capitalization and multiple complex capital raising and equity transactions. This deficiency arose primarily from staff turnover including the Company’s failure to more quickly replace its Director of Financial Planning and Reporting, who left the Company for a new position in November, 2016.

As a consequence, the Company did not have effective process level control activities over the following:

- Accounting for the Company's convertible debt and preferred stock transactions was lacking for the preparation of the December 31, 2016 financial statements. Many of the special accounting issues specific to debt and equity financing have become increasingly complex and time-consuming, and require extensive expertise to ensure that the accounting and reporting are accurate and in accordance with applicable standards. Given the numerous complex convertible equity financing transactions engaged in by the Company during 2016, the relevant accounting standards require the calculation, monitoring, recalculation and “marking to market” of a wide variety of derivative securities instruments that are deemed to arise from such financing transactions. These complex derivatives calculations are used in order to calculate the intrinsic value of the financial instruments and affect the short term embedded derivative liabilities line item on the Company’s balance sheet and in the change in fair value of derivatives and gain/loss on extinguishment of liabilities line item on the Company’s consolidated statement of operations. As the calculations in question relate to non-cash transactions, there was no impact on the Company's cash, current assets, revenues, operating results, or cash flows.

The control deficiencies described above created a reasonable possibility that a material misstatement to the consolidated financial statements would not be prevented or detected on a timely basis. The control deficiencies described above resulted in material misstatements in the preliminary consolidated financial statements that were corrected prior to the issuance of the consolidated financial statements as of and for the fiscal year ended December 31, 2016.

During 2017, the Company executed the following steps to remedy the material weaknesses from 2016 described below:

- In March 2017, the Company hired a Director of Financial Planning and Reporting with the technical expertise to research and account for the Company's complex capital raising and financial transactions. In addition, the Company is continuously evaluating its personnel needs and other resources to ensure appropriate staffing and enhance its research and technical accounting knowledge base.

- The Company designed and implemented additional procedures in order to assure that the Director of Financial Planning and Reporting and other audit/accounting personnel are more involved with the Company’s financing activities to monitor and earlier identify accounting issues that may be raised by the Company’s ongoing financing activities.

Based on our assessment and the criteria used, management concluded that our internal control over financial reporting as of December 31, 2017 was effective.

Changes in Internal Control Over Financial Reporting

Except for the identification and mitigation of the material weaknesses noted above, there were no other changes in internal control over financial reporting during the year ended December 31, 2017 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

Incorporated by reference from the definitive proxy statement for our 2018 annual meeting, which will be filed no later than 120 days after the close of our fiscal year ended December 31, 2017.

Item 11. Executive Compensation

Incorporated by reference from the definitive proxy statement for our 2018 annual meeting, which will be filed no later than 120 days after the close of our fiscal year ended December 31, 2017.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

Incorporated by reference from the definitive proxy statement for our 2018 annual meeting, which will be filed no later than 120 days after the close of our fiscal year ended December 31, 2017.

Securities Authorized for Issuance under Equity Compensation Plans

The following table sets forth information as of December 31, 2017 relating to all of our equity compensation plans:

	Number of securities to be issued upon exercise of outstanding options, warrants and rights (1)	Weighted average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plans
Equity compensation plans approved by security holders	67,014	$ 41.98	685,323

Item 13. Certain Relationships and Related Transactions, and Director Independence

Incorporated by reference from the definitive proxy statement for our 2018 annual meeting, which will be filed no later than 120 days after the close of our fiscal year ended December 31, 2017.

Item 14. Principal Accounting Fees and Services

Incorporated by reference from the definitive proxy statement for our 2018 annual meeting, which will be filed no later than 120 days after the close of our fiscal year ended December 31, 2017.

PART IV

Item 15. Exhibits and Financial Statement Schedules

(a) The following documents are filed as part of this Annual Report on Form 10-K:

(1) Financial Statements—See Index to Financial Statements at Item 8 of the Annual Report on Form 10-K.

(2) Financial Statement Schedules—Supplemental schedules are not provided because of the absence of conditions under which they are required or because the required information is given in the financial statements or notes thereto.

(3) Exhibits: See Item 15(b) below.

(b) Exhibits: The exhibits listed on the accompanying Index to Exhibits on this Form 10-K are filed or incorporated into this Form 10-K by reference.

Table of Contents

INDEX TO EXHIBITS

Set forth below is a list of exhibits that are being filed or incorporated by reference into this Annual Report on Form 10-K:

Exhibit No.	Description
3.1	Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.2 to our Registration Statement on Form SB-2 filed on January 23, 2006 (Reg. No. 333-131216))
3.2	Certificate of Amendment to the Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.1 to our Quarterly Report on Form 10-Q for the quarter ended September 30, 2011)
3.3	Certificate of Amendment to the Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed February 11, 2014)
3.4	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated August 26, 2014. (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed September 2, 2014)
3.5	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated October 27, 2014 (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K dated October 28, 2014)
3.6	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated December 22, 2014. (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K dated December 23, 2014)
3.7	Second Amended and Restated Bylaws (incorporated by reference to Exhibit 3.2 to our Current Report on Form 8-K filed on February 17, 2009)
3.8	First Amendment to Second Amended and Restated Bylaws (incorporated by reference to Exhibit 3.3 to our Quarterly Report on Form 10-Q for the quarter ended September 30, 2009)
3.9	Second Amendment to Second Amended and Restated Bylaws (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed January 25, 2013)
3.10	Third Amendment to Second Amended and Restated Bylaws (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed December 18, 2015)
3.11	Certificate of Designations of Preferences, Rights and Limitations of Series F 7% Preferred Stock (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed January 20, 2016)
3.12	Certificate of Designations of Preferences, Rights and Limitations of Series G 10% Preferred Stock (incorporated by reference to Exhibit 2 to Exhibits 10.5 and 10.6 to our Current Report on Form 8-K filed May 2, 2016).
3.13	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated May 26, 2016 (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed June 2, 2016)

Exhibit No.	Description
3.14	Certificate of Designations of Preferences, Rights and Limitations of Series H 7% Preferred Stock (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed June 9, 2016)
3.15	Certificate of Designations of Preferences, Rights and Limitations of Series I Preferred Stock (incorporated by reference to Exhibit 2 to Exhibit 10.1 to our Current Report on Form 8-K filed July 28, 2016)
3.16	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated September 15, 2016 (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed September 16, 2016)
3.17	Certificate of Designations of Preferences, Rights and Limitations of Series J Preferred Stock (incorporated by reference to Exhibit 2 to Exhibit 10.1 to our Current Report on Form 8-K filed September 23, 2016)
3.18	Certificate of Amendment to Series G Certificate of Designations (incorporated by reference to Exhibit 3.2 to our Current Report on Form 8-K filed September 23, 2016)
3.19	Certificate of Amendment to Series F Certificate of Designations (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed October 11, 2016)
3.20	Certificate of Designations of Preferences, Rights and Limitations of Series J-1 Preferred Stock (incorporated by reference to Exhibit 2 to Exhibit 10.1 to our Current Report on Form 8-K filed October 20, 2016)
3.21	Certificate of Designations of Preferences, Rights and Limitations of Series K Preferred Stock (incorporated by reference to Exhibit 2 to Exhibit 10.1 to our Current Report on Form 8-K filed February 14, 2017)
3.22	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated March 16, 2017 (incorporated by reference to Exhibit 3.2 to our Current Report on Form 8-K filed March 17, 2017)
4.1	Form of Common Stock Certificate (incorporated by reference to Exhibit 4.1 to our Registration Statement on Form SB-2 filed on January 23, 2006 (Reg. No. 333-131216))
4.2	Certificate of Designations of Series A Preferred Stock (filed as Exhibit 4.2 to our Registration Statement on Form S-3 filed July 1, 2013 (Reg. No. 333-189739))
4.3	Form of Warrant (filed as Exhibit 4.3 to our Registration Statement on Form S-3 filed July 1, 2013 (Reg. No. 333-189739))
4.4	Certificate of Designations of Series B-1 and B-2 Preferred Stock (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed October 30, 2013)
4.5	Certificate of Designations of Series C Preferred Stock (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed April 2, 2014)
4.6	Certificate of Designations of Preferences, Rights and Limitations of Series D Preferred Stock (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed November 17, 2014)

Exhibit No.	Description
4.7	Certificate of Designations of Preferences, Rights and Limitations of Series D-1 Preferred Stock (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed February 20, 2015)
4.8	Certificate of Designations, Preferences and Rights of the Series E Convertible Preferred Stock (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed on November 10, 2015)
10.1	Securities Purchase Agreement, dated January 17, 2006, between the Company and ITN Energy Systems, Inc. (incorporated by reference to Exhibit 10.1 to our Registration Statement on Form SB-2 filed on January 23, 2006 (Reg. No. 333-131216))CTR
10.2	Invention and Trade Secret Assignment Agreement, dated January 17, 2006, between the Company and ITN Energy Systems, Inc. (incorporated by reference to Exhibit 10.2 to our Registration Statement on Form SB-2 filed on January 23, 2006 (Reg. No. 333-131216))CTR
10.3	Patent Application Assignment Agreement, dated January 17, 2006, between the Company and ITN Energy Systems, Inc. (incorporated by reference to Exhibit 10.3 to our Registration Statement on Form SB-2 filed on January 23, 2006 (Reg. No. 333-131216))
10.4	License Agreement, dated January 17, 2006, between the Company and ITN Energy Systems, Inc. (incorporated by reference to Exhibit 10.4 to our Registration Statement on Form SB-2 filed on January 23, 2006 (Reg. No. 333-131216))CTR
10.5	Letter Agreement, dated November 23, 2005, among the Company, ITN Energy Systems, Inc. and the University of Delaware (incorporated by reference to Exhibit 10.16 to our Registration Statement on Form SB-2/A filed on May 26, 2006 (Reg. No. 333-131216))
10.6	License Agreement, dated November 21, 2006, between the Company and UD Technology Corporation (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on November 29, 2006)CTR
10.7	Novation Agreement, dated January 1, 2007, among the Company, ITN Energy Systems, Inc. and the United States Government (incorporated by reference to Exhibit 10.23 to our Annual Report on Form 10-KSB for the year ended December 31, 2006)
10.8	Construction Loan Agreement, dated February 8, 2008, between the Company and the Colorado Housing and Finance Authority (incorporated by reference to Exhibit 10.37 to our Annual Report on Form 10-K for the year ended December 31, 2007)
10.9	Promissory Note, dated February 8, 2008, issued to the Colorado Housing and Finance Authority (incorporated by reference to Exhibit 10.38 to our Annual Report on Form 10-K for the year ended December 31, 2007)
10.10	Loan Modification Agreement, dated January 29, 2009, between the Company and the Colorado Housing and Finance Authority (incorporated by reference to Exhibit 10.52 to our Annual Report on Form 10-K for the year ended December 31, 2008)
10.11†	Executive Employment Agreement, dated April 4, 2014, between the Company and Victor Lee (filed as Exhibit 10.1 to our Current Report on Form 8-K filed on April 9, 2014) †
10.12	Series E Securities Purchase Agreement, dated November 4, 2015, between the Company and Redwood Management, LLC Ltd (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed November 10, 2015)
10.13	Series E Registration Rights Agreement, dated November 4, 2015, between the Company and Redwood Management, LLC (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed November 10, 2015)

Exhibit No.	Description
10.14	Equity Line Purchase Agreement dated November 10, 2015 (incorporated by reference to Exhibit 10.3 to our Current Report on Form 8-K filed November 10, 2015)
10.15	Equity Line Registration Rights Agreement dated November 10, 2015 (incorporated by reference to Exhibit 10.4 to our Current Report on Form 8-K filed November 10, 2015)
10.16	Series F Securities Purchase Agreement, dated January 19, 2016, between the Company and Redwood Management, LLC Ltd (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed January 20, 2016)
10.17	Right to Receive Common Stock dated April 29, 2016 (incorporated by reference to Exhibit 10.3 to our Current Report on Form 8-K filed May 2, 2016)
10.18	Right to Receive Common Stock dated April 29, 2016 (incorporated by reference to Exhibit 10.4 to our Current Report on Form 8-K filed May 2, 2016)
10.19	Series G Securities Purchase Agreement dated April 29, 2016 (incorporated by reference to Exhibit 10.5 to our Current Report on Form 8-K filed May 2, 2016
10.20	Series G Securities Purchase Agreement dated April 29, 2016 (incorporated by reference to Exhibit 10.6 to our Current Report on Form 8-K filed May 2, 2016
10.21	Series H Securities Purchase Agreement dated June 9, 2016 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed June 9, 2016)
10.22	Series H Registration Rights Agreement dated June 9, 2016 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed June 9, 2016)
10.23†	Seventh Amended and Restated 2005 Stock Option Plan (incorporated by reference to Annex C of our definitive proxy statement dated April 22, 2016)†
10.24†	Seventh Amended and Restated 2008 Restricted Stock Plan Stock Option Plan Plan (incorporated by reference to Annex B of our definitive proxy statement dated April 22, 2016)†
10.25	Series I Securities Purchase Agreement dated July 26, 2016 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed July 28, 2016)
10.26	Form of 10% Convertible Note (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed September 14, 2016)
10.27	Exchange Agreement dated September 13, 2016 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed September 14, 2016)
10.28	Series J Securities Purchase Agreement dated September 19, 2016 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed September 23, 2016)

Exhibit No.	Description
10.29	Securities Purchase Agreement for Notes dated October 5, 2016 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed October 11, 2016)
10.30	Note due December 5, 2016 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed October 11, 2016)
10.31	Note due January 3, 2017 (incorporated by reference to Exhibit 10.3 to our Current Report on Form 8-K filed October 11, 2016)
10.32	Note due February 3, 2017 (incorporated by reference to Exhibit 10.4 to our Current Report on Form 8-K filed October 11, 2016)
10.33	Exchange Agreement dated October 5, 2016 (incorporated by reference to Exhibit 10.5 to our Current Report on Form 8-K filed October 11, 2016)
10.34	Series J-1 Securities Purchase Agreement dated October 14, 2016 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed October 20, 2016)
10.35	Note dated December 2, 2016 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed December 8, 2016)
10.36	Note dated December 6, 2016 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed December 8, 2016)
10.37	Note dated December 13, 2016 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed December 19, 2016)
10.38	Note dated December 30, 2016 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed January 6, 2017)
10.39	Note dated January 10, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed January 17, 2017)
10.40	$300,000 Note dated January 16, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed January 20, 2017)
10.41	$700,000 Note dated January 17, 2017 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed January 20, 2017)
10.42	Securities Purchase Agreement dated January 19, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed January 24, 2017)
10.43	Note dated February 7, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed February 9, 2017)

Exhibit No.	Description
10.44	Series K Securities Purchase Agreement dated February 8, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed February 14, 2017)
10.45	Note dated February 13, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed February 17, 2017)
10.46	$400,000 Note dated February 27, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed March1, 2017)
10.47	Intellectual Property Disposal Agreement dated as of January 25, 2017 and effective February 23, 2017 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed March 1, 2017)
10.48	Note dated March 13, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed March 17, 2017)
10.49	Note dated March 24, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed March 29, 2017)
10.50	Note dated April 6, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed April 7, 2017)
10.51	Note dated April 21 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed April 24, 2017)
10.52	Forbearance and Settlement Agreement dated May 5, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed May 10, 2017)
10.53	Note dated May 8, 2017 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed May 10, 2017)
10.54	Form of Warrant (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed July 27, 2017)
10.55	Form of Warrant (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed August 11, 2017)
10.56	Securities Purchase Agreement dated September 8, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed September 14, 2017)
10.57	Note dated September 11, 2017 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed September 14, 2017)
10.58	Promissory Note Exchange Agreement dated September 13, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed September 20, 2017)

Exhibit No.	Description
10.59	Note dated September 13, 2017 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed September 20, 2017)
10.60	Note dated October 31, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed November 8, 2017)
10.61	Note dated November 16, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed November 22, 2017)
10.62	Note Purchase and Exchange Agreement dated November 30, 2017*
10.63	Form of Secured Convertible Promissory Note - 36 month maturity*
10.64	Form of Secured Convertible Promissory Note - 12 month maturity*
10.65	Security Agreement dated November 30, 2017*
10.66	Series J Securities Exchange Agreement dated December 6, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed December 12, 2017)
10.67	Note dated December 6, 2017 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed December 12, 2017)
10.68	Warrant dated December 15, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed December 20, 2017)
10.69	Unsecured Promissory Note dated January 31, 2018 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed February 2, 2018)
16.1	Letter from Hein & Associates, LLP dated March 29, 2018*
23.1	Consent of Haynie & Company*
23.2	Consent of Hein & Associates LLP*
31.1	Chief Executive Officer Certification pursuant to section 302 of the Sarbanes-Oxley Act of 2002*

Exhibit No.	Description
31.2	Chief Financial Officer Certification pursuant to section 302 of the Sarbanes-Oxley Act of 2002*
32.1	Chief Executive Officer Certification pursuant to section 906 of the Sarbanes-Oxley Act of 2002*
32.2	Chief Financial Officer Certification pursuant to section 906 of the Sarbanes-Oxley Act of 2002*
101.INS	XBRL Instance Document*
101.SCH	XBRL Taxonomy Extension Schema Document*
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document*
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document*
101.LAB	XBRL Taxonomy Extension Label Linkbase Document*
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document*

*	Filed herewith
CTR	Portions of this exhibit have been omitted pursuant to a request for confidential treatment.
†	Denotes management contract or compensatory plan or arrangement.

Item 16. Form 10-K Summary

None.

ASCENT SOLAR TECHNOLOGIES, INC.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized on the 30th day of March, 2018.

ASCENT SOLAR TECHNOLOGIES, INC.

By: /S/ VICTOR LEE

Lee Kong Hian (aka Victor Lee)
President and Chief Executive Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant in the capacities and on the dates indicated.

Signature	Capacities	Date
/S/ VICTOR LEE Lee Kong Hian (aka Victor Lee)	President & Chief Executive Officer and a Director (principal executive officer, and principal financial officer and accounting officer)	March 29, 2018
/S/ AMIT KUMAR Amit Kumar, Ph.D.	Chairman of the Board of Directors	March 29, 2018
/S/ TOMAS MARSH G. Thomas Marsh	Director	March 29, 2018
/S/ KIM J. HUNTLEY Kim J. Huntley	Director	March 29, 2018

Ascent Solar Technologies, Inc.

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM FOR 2016

To the Board of Directors
Ascent Solar Technologies, Inc.

We have audited the accompanying consolidated balance sheet of Ascent Solar Technologies, Inc. and subsidiaries as of December 31, 2016, and the related consolidated statements of operations, stockholders' equity (deficit) and cash flows for the year then ended. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. Our audit included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Ascent Solar Technologies, Inc. and subsidiaries as of December 31, 2016, and the results of their operations and their cash flows for the year then ended in conformity with U.S. generally accepted accounting principles.

The accompanying financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 4 to the financial statements, the Company has suffered recurring losses from operations and requires additional financing to fund operations through December 31, 2017. This raises substantial doubt about the Company's ability to continue as a going concern. Management's plans in regard to these matters also are described in Note 4. The financial statements do not include any adjustments that might result from the outcome of this uncertainty.

/s/ Hein & Associates LLP

Denver, Colorado
April 14, 2017

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM FOR 2017

To the Board of Directors and

Stockholders of Ascent Solar Technologies, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheet of Ascent Solar Technologies, Inc. (the Company) as of December 31, 2017,and the related consolidated statements of operations, stockholders' deficit, and cash flows for the year ended December 31, 2017, and the related notes (collectively referred to as the financial statements). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2017 and , and the results of its operations and its cash flows for the year ended December 31, 2017, in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audit. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audit, we are required to obtain an understanding of internal control over financial reporting, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audit included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audit also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audit provides a reasonable basis for our opinion.

Consideration of the Company's Ability to Continue as a Going Concern

The accompanying financial statements have been prepared assuming that the Company will continue as a going concern. As more fully described in Note 4 to the financial statements, the Company has recurring losses, negative working capital and negative cash flows from operations. These factors raise substantial doubt about the Company's ability to continue as a going concern. Management's plans in regard to these matters are also described in Note 4 to the financial statements. The financial statements do not include any adjustments that might result from the outcome of this uncertainty. If the Company is unable to obtain financing or increase sales, there could be a material adverse effect on the Company.

/s/ Haynie & Company

We have served as the Company's auditor since 2017.

Littleton, CO

March 29, 2018

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ASCENT SOLAR TECHNOLOGIES, INC.

CONSOLIDATED BALANCE SHEETS

	December 31, 2017	December 31, 2016
ASSETS (substantially pledged)		
Current Assets:		
Cash and cash equivalents	$ 89,618	$ 130,946
Trade receivables, net of allowance of $48,201 and $106,205, respectively	6,658	549,204
Inventories	1,037,854	2,569,816
Prepaid expenses and other current assets	494,425	983,796
Total current assets	1,628,555	4,233,762
Property, Plant and Equipment:	36,645,862	36,639,460
Less accumulated depreciation and amortization	(32,013,686)	(30,983,448)
	4,632,176	5,656,012
Other Assets:		
Patents, net of accumulated amortization of $430,071 and $279,143, respectively	1,470,796	1,647,505
Other non-current assets	49,813	77,562
	1,520,609	1,725,067
Total Assets	$ 7,781,340	$ 11,614,841
LIABILITIES AND STOCKHOLDERS' DEFICIT		
Current Liabilities:		
Accounts payable	$ 1,600,455	$ 4,902,471
Related party payables	202,827	214,903
Accrued expenses	1,623,748	1,469,684
Notes payable	1,570,231	—
Current portion of long-term debt	343,395	243,113
Current portion of secured promissory notes, net of discount of $1,934,304 and zero, respectively	253,590	1,010,000
Litigation settlement	—	339,481
Promissory notes, net of discount of $20,626 and zero, respectively	948,811	420,000
TFG promissory notes, net of discount of zero and $59,658, respectively	—	542,808
July 2016 convertible notes, net of discount of zero and $1,634,357, respectively	—	1,159,610
October 2016 convertible notes, net of discount of zero and $264,000, respectively	330,000	66,000
St. George convertible note, net of discount and cash payment premium of $673,241 and zero, respectively	1,032,592	—
BayBridge convertible note, net of discount of $565,000 and zero, respectively	—	—
Series E preferred stock, net of discount of zero and $63,640, respectively	—	56,360
Series F preferred stock	—	160,001
Series G preferred stock, net of discount of zero and $699,674, respectively	—	408,326
Series I exchange notes, net of discount of zero and $199,474, respectively	—	26,597
Embedded derivative liabilities	6,406,833	6,578,154
Make-whole dividend liability	—	500,176
Total current liabilities	14,312,482	18,097,684
Long-term debt, net of current portion	5,118,424	5,281,776
	685,066	—

Secured promissory notes, net of current portion and discount of $1,684,267 and zero, respectively		
Accrued Warranty Liability	57,703	176,457
Redeemable Preferred Stock:		
Series J preferred stock: 1,350 shares authorized; zero and 1,350 issued and outstanding as of December 31, 2017 and December 31, 2016, respectively	—	1,350,000
Series J-1 preferred stock: 1,000 shares authorized; zero and 700 issued and outstanding as of December 31, 2017 and December 31, 2016, respectively	—	700,000
Series K preferred stock: 20,000 and zero shares authorized as of December 31, 2017 and December 2016, respectively; 2,810 and zero issued and outstanding as of December 31, 2017 and December 31, 2016, respectively	2,810,000	—
Commitments and Contingencies	—	—
Stockholders' Deficit:		
Series A preferred stock, $.0001 par value; 750,000 shares authorized and issued; 60,756 and 125,044 shares outstanding as of December 31, 2017 and December 31, 2016, respectively ($761,864 and $1,500,528 Liquidation Preference)	6	13
Common stock, $0.0001 par value, 20,000,000,000 and 2,000,000,000 shares authorized as of December 31, 2017 and December 31, 2016, respectively; 9,606,597,777 and 554,223,320 shares issued and outstanding as of December 31, 2017 and December 31, 2016, respectively	960,660	55,422
Additional paid in capital	386,332,475	369,886,065
Accumulated deficit	(402,495,476)	(383,932,576)
Total stockholders' equity (deficit)	(15,202,335)	(13,991,076)
Total Liabilities and Stockholders' Equity	$ 7,781,340	$ 11,614,841

The accompanying notes are an integral part of these consolidated financial statements.

ASCENT SOLAR TECHNOLOGIES, INC.

CONSOLIDATED STATEMENTS OF OPERATIONS

	For the Years Ended December 31,	
	2017	2016
Revenues	642,179	1,747,356
Costs and Expenses		
Cost of revenues (exclusive of depreciation shown below)	2,814,782	5,843,872
Research, development and manufacturing operations (exclusive of depreciation shown below)	4,820,536	6,627,249
Selling, general and administrative (exclusive of depreciation shown below)	5,598,004	10,304,779
Depreciation and amortization	1,193,535	3,600,007
Inventory impairment loss	363,377	—
Total Costs and Expenses	14,790,234	26,375,907
Loss from Operations	(14,148,055)	(24,628,551)
Other Income/(Expense)		
Other Income/(Expense), net	574,817	82,772
Interest Expense	(6,518,747)	(7,902,926)
Deemed interest expense on warrant liability	(345,774)	—
Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net	1,877,629	(6,402,077)
Total Other Income/(Expense)	(4,412,075)	(14,222,231)
Net Loss	$ (18,560,130)	$ (38,850,782)
Net Loss Per Share (Basic and diluted)	$ 0.003	$ (0.418)
Weighted Average Common Shares Outstanding (Basic and diluted)	5,883,374,222	93,005,062

The accompanying notes are an integral part of these consolidated financial statements.

ASCENT SOLAR TECHNOLOGIES, INC.

CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY (DEFICIT)

	Common Stock		Series A Preferred Stock		Additional Paid-In Capital	Accumulated Deficit	Total Stockholders' Equity (Deficit)
	Shares	Amount	Shares	Amount			
Balance, December 31, 2015	7,759,844	$ 777	212,390	$ 21	$ 347,659,690	$ (345,081,794)	$ 2,578,694
Conversion of Convertible Notes into Common Shares	48,993	5			$ 58,818	—	58,823
Common Shares sold pursuant to the Committed Equity Line	525,454	52			1,056,095	—	1,056,147
Conversion of Right Shares into Common Shares	2,052,865	205			1,346,795	—	1,347,000
Interest and Dividend Expense paid with Common Stock	18,575,710	1,858			254,922	—	256,780
Issuance of Restricted Stock	183,230	18			(18)	—	—
Commitment Shares	107,000	11			(11)	—	—
Conversion of Series A Preferred Stock into Common Shares, plus make-whole	6,942,936	694	(46,849)	(4)	222,099	—	222,789
Conversion of Series E Preferred Stock into Common Shares	41,895,161	4,189			3,414,032	—	3,418,221
Conversion of Series F Preferred Stock into Common Shares	113,059,991	11,306			9,920,148	—	9,931,454
Conversion of Series G Preferred Stock into Common Shares	234,409,413	23,441			1,472,955	—	1,496,396
Conversion of Series I Preferred Stock into Common Shares	6,988,353	699			2,532,718	—	2,533,417
Conversion of Series I Convertible Notes into Common Shares	14,816,862	1,481			159,345	—	160,826
Conversion of July 2016 Convertible Notes into Common Shares	64,000,000	6,400			245,280	—	251,680
Conversion of October 2016 Convertible Notes into Common Shares, plus make-whole	42,857,508	4,286	(40,497)	(4)	173,288	—	177,570
Stock based compensation					888,348		888,348
Beneficial Conversion Feature related to Series G and Series I Preferred Stock					481,561		481,561
Net Loss						(38,850,782)	(38,850,782)
Balance, December 31, 2016	554,223,320	$ 55,422	125,044	$ 13	$ 369,886,065	$ (383,932,576)	$ (13,991,076)

The accompanying notes are an integral part of these consolidated financial statements.

ASCENT SOLAR TECHNOLOGIES, INC.

CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY (DEFICIT)

	Common Stock		Series A Preferred Stock		Additional Paid-In Capital	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount	Shares	Amount			
Balance, December 31, 2016	554,223,320	$ 55,422	125,044	$ 13	$ 369,886,065	$ (383,932,576)	(13,991,076)
Interest and Dividend Expense paid with Common Stock	332,006,907	33,201			213,383		246,584
Issuance of Restricted Stock	40,000	4			(4)		—
Commitment Shares	37,500,000	3,750			60,000		63,750
Conversion of Series A Preferred Stock into Common Shares, plus make-whole	131,088,740	13,109	(64,288)	(7)	244,050		257,152
Conversion of Series E Preferred Stock into Common Shares	247,371,677	24,737			95,263		120,000
Conversion of Series F Preferred Stock into Common Shares	189,780,458	18,978			108,022		127,000
Conversion of Series G Preferred Stock into Common Shares	1,529,316,391	152,932			745,068		898,000
Conversion of Series I Convertible Notes into Common Shares	419,719,614	41,972			184,099		226,071
Conversion of Series J Preferred Stock into Common Shares	365,646,259	36,565			238,435		275,000
Conversion of Series J-1 Preferred Stock into Common Shares	466,666,667	46,667			653,333		700,000
Conversion of Series K Preferred Stock into Common Shares	1,550,000,000	155,000			6,045,000		6,200,000
Conversion of July 2016 Convertible Notes into Common Shares	2,808,248,547	280,825			1,419,142		1,699,967
Conversion of TFG note into Common Shares	333,333,333	33,333			511,348		544,681
Conversion of BayBridge Note into Common Shares	473,404,630	47,340			330,659		377,999
Conversion of Global Ichiban Note into Common Shares	168,251,234	16,825			146,683		163,508
Loss on Extinguishment of Liabilities					4,481,939		4,481,939
Induced Conversion Costs					500,948		500,948
Warrant Expense					345,774		345,774
Stock based compensation					123,268		123,268
Prior period adjustment - subsidiary						(2,770)	(2,770)
Net Loss						(18,560,130)	(18,560,130)
Balance, December 31, 2017	9,606,597,777	$ 960,660	60,756	$ 6	$ 386,332,475	$ (402,495,476)	$ (15,202,335)

The accompanying notes are an integral part of these consolidated financial statements.

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ASCENT SOLAR TECHNOLOGIES, INC.

CONSOLIDATED STATEMENTS OF CASH FLOWS

	For the Years Ended December 31, 2017	For the Years Ended December 31, 2016
Operating Activities:		
Net loss	$ (18,560,130)	$ (38,850,782)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	1,197,285	3,600,007
Stock based compensation	123,268	888,348
Realized loss (gain) on sale of assets	(1,210,331)	(82,772)
Amortization of financing costs	76,351	137,111
Non-cash interest expense	643,263	948,901
Amortization of debt discount	4,427,086	6,214,060
Bad debt expense	514	122,416
Accrued litigation settlement	(339,481)	(541,279)
Warrant expense	345,774	—
Impairment of inventory	363,377	—
Warranty reserve	(118,754)	(87,543)
Change in fair value of derivatives and loss on extinguishment of liabilities, net	(1,877,629)	6,402,077
Induced conversion expense	635,514	—
Changes in operating assets and liabilities:		
Accounts receivable	569,632	1,321,265
Inventories	1,168,585	1,702,564
Prepaid expenses and other current assets	389,910	379,374
Accounts payable	(592,403)	1,492,053
Related party payable	(12,076)	
Accrued expenses	172,316	(501,284)
Net cash used in operating activities	(12,597,929)	(16,855,484)
Investing Activities:		
Purchase of property, plant and equipment	(6,402)	(51,724)
Proceeds from sale of assets	150,000	82,772
Patent activity costs	(62,652)	(189,455)
Net cash used in investing activities	80,946	(158,407)
Financing Activities:		
Proceeds from debt	5,542,500	1,930,000
Repayment of debt	(2,056,845)	(266,027)
Payment of debt financing costs	(20,000)	(81,500)
Proceeds from Committed Equity Line	—	1,056,147
Proceeds from issuance of stock and warrants	9,010,000	14,180,000
Net cash provided by financing activities	12,475,655	16,818,620
Net change in cash and cash equivalents	(41,328)	(195,271)
Cash and cash equivalents at beginning of period	130,946	326,217
Cash and cash equivalents at end of period	$ 89,618	$ 130,946
Supplemental Cash Flow Information:		
Cash paid for interest	$ 1,221,843	$ 417,876
Cash paid for income taxes	$ —	$ —
Non-Cash Transactions:		

Non-cash conversions of preferred stock and convertible notes to equity	$ 11,835,962	$ 10,617,764
Non-cash conversions of preferred stock to notes payable	$ 1,075,000	$ —
Make-whole provision on convertible preferred stock	$ 257,152	$ 161,988
Non-cash financing costs	$ 2,500	$ —
Debt converted to accounts payable	$ 55,067	$ —
Accounts payable converted to notes payable	$ 1,587,760	$ —
Accounts payable forgiven related to sale of EnerPlex	$ 1,031,726	$ —
Interest converted to principal	$ 431,195	$ —
Common shares issued for commitment fee	$ 63,750	$ —
Initial embedded derivative liabilities	$ 5,878,345	$ 5,444,362

The accompanying notes are an integral part of these consolidated financial statements.

ASCENT SOLAR TECHNOLOGIES, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

NOTE 1. ORGANIZATION

Ascent Solar Technologies, Inc. (“Ascent”) was incorporated on October 18, 2005 from the separation by ITN Energy Systems, Inc. (“ITN”) of its Advanced Photovoltaic Division and all of that division’s key personnel and core technologies. ITN, a private company incorporated in 1994, is an incubator dedicated to the development of thin film, photovoltaic (“PV”), battery, fuel cell and nano technologies. Through its work on research and development contracts for private and governmental entities, ITN developed proprietary processing and manufacturing know how applicable to PV products generally, and to Copper-Indium-Gallium-diSelenide (“CIGS”) PV products in particular. ITN formed Ascent to commercialize its investment in CIGS PV technologies. In January 2006, in exchange for 102,800 shares of common stock of Ascent, ITN assigned to Ascent certain CIGS PV technologies and trade secrets and granted to Ascent a perpetual, exclusive, royalty free worldwide license to use, in connection with the manufacture, development, marketing and commercialization of CIGS PV to produce solar power, certain of ITN’s existing and future proprietary and control technologies that, although non-specific to CIGS PV, Ascent believes will be useful in its production of PV modules for its target markets. Upon receipt of the necessary government approvals and pursuant to novation in early 2007, ITN assigned government funded research and development contracts to Ascent and also transferred the key personnel working on the contracts to Ascent.

Currently, the Company is focusing on integrating its PV products into high value markets such as aerospace, satellites, near earth orbiting vehicles, and fixed-wing unmanned aerial vehicles (UAV). The value proposition of Ascent’s proprietary solar technology not only aligns with the needs of customers in these industries, but also overcomes many of the obstacles other solar technologies face in these unique markets. Ascent has the capability to design and develop finished products for end users in these areas as well as collaborate with strategic partners to design and develop custom integrated solutions for products like fixed-wing UAVs. Ascent sees significant overlap of the needs of end users across some of these industries and can achieve economies of scale in sourcing, development, and production in commercializing products for these customers.

Reverse Stock Split

On May 26, 2016, the Company, a Delaware corporation, filed a Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company (the “Certificate of Amendment”) with the Secretary of State of the State of Delaware to effect a reverse stock split of the Company’s common stock, par value $0.0001 per share, at a ratio of one-for-twenty (the “Reverse Stock Split”). The Certificate of Amendment did not change the number of authorized shares, or the par value, of the Company’s common stock. The Certificate of Amendment provides that every twenty shares of the Company’s issued and outstanding common stock were automatically combined into one issued and outstanding share of the Company’s common stock. All shares and per share amounts in the consolidated financial statements and accompanying notes have been retroactively adjusted to give effect to the Reverse Stock Split.

NOTE 2. BASIS OF PRESENTATION

The accompanying consolidated financial statements have been derived from the accounting records of Ascent Solar Technologies, Inc., Ascent Solar (Asia) Pte. Ltd., and Ascent Solar (Shenzhen) Co., Ltd. (collectively, "the Company") as of December 31, 2017 and December 31, 2016, and the results of operations for the years ended December 31, 2017 and 2016. Ascent Solar (Shenzhen) Co., Ltd. is wholly owned by Ascent Solar (Asia) Pte. Ltd., which is wholly owned by Ascent Solar Technologies, Inc. All significant inter-company balances and transactions have been eliminated in the accompanying consolidated financial statements.

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

NOTE 3. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Cash Equivalents: The Company classifies all short-term investments in interest bearing bank accounts and highly liquid debt securities purchased with an original maturity of three months or less to be cash equivalents. The Company maintains cash balances which may exceed federally insured limits. The Company does not believe this results in significant credit risk.

Foreign Currencies: Bank account balances held in foreign currencies are translated to U.S. dollars utilizing the period end exchange rate. Gains or losses incurred in connection with the Company's accounts held in foreign currency were not material for the years ended December 31, 2017 and 2016 and were recorded in "Other Income/(Expense)" in the Consolidated Statements of Operations.

Receivables and Allowance for Doubtful Accounts: Trade accounts receivable are recorded at the invoiced amount as the result of transactions with customers. The Company maintains allowances for doubtful accounts for estimated losses resulting from the inability of its customers to make required payments. The Company estimates the collectability of accounts receivable using analysis of historical bad debts, customer credit-worthiness and current economic trends. Reserves are established on an account-by-account basis. Account balances are written off against the allowance in the period in which the Company determines that is it probable that the receivable will not be recovered. As of December 31, 2017 and 2016, the Company had an allowance for doubtful accounts of $48,201 and $106,205, respectively.

Inventories: All inventories are stated at the lower of cost or net realizable value, with cost determined using the weighted average method. Inventory balances are frequently evaluated to ensure they do not exceed net realizable value. The computation for net realizable value takes into account many factors, including expected demand, product life cycle and development plans, module efficiency, quality issues, obsolescence and others. Management's judgment is required to determine reserves for obsolete or excess inventory. As of December 31, 2017 and 2016, the Company had inventory reserve balances of $562,140 and $736,663, respectively. If actual demand and market conditions are less favorable than those estimated by management, additional inventory write downs may be required.

Due to the sale of the EnerPlex brand and the re-purposing of our work-in-process inventory, we are unable to estimate the recoverability of all of our work-in process inventory values, resulting in a lower-cost-to-market analysis and reserve for impairment. An expense of $363,377 was recorded to inventory impairment costs for the year ended December 31, 2017. There were no lower of cost or market adjustments during the year ended December 31, 2016.

Property, Plant and Equipment: Property, plant and equipment are recorded at the original cost to the Company. Assets are being depreciated over estimated useful lives of three to forty years using the straight-line method, as presented in the table below, commencing when the asset is placed in service. Leasehold improvements are depreciated over the shorter of the remainder of the lease term or the life of the improvements. Upon retirement or disposal, the cost of the asset disposed of and the related accumulated depreciation are removed from the accounts and any gain or loss is reflected in income. Expenditures for repairs and maintenance are expensed as incurred.

	Useful Lives in Years
Buildings	40
Manufacturing machinery and equipment	5 - 10
Furniture, fixtures, computer hardware/software	3 - 7
Leasehold improvements	life of lease

Patents: At such time as the Company is awarded patents, patent costs are amortized on a straight-line basis over the legal life on the patents, or over their estimated useful lives, whichever is shorter. As of December 31, 2017 and 2016, the Company had $1,470,796 and $1,647,505 of net patent costs, respectively. Of these amounts $640,167 and $619,241 represents costs net of amortization incurred for awarded patents, and the remaining $830,629 and $1,028,264 represents costs incurred for patent applications to be filed as of December 31, 2017 and 2016, respectively. During the years ended December 31, 2017 and 2016, the Company capitalized $62,652 and $189,455 in patent costs, respectively, as it worked to secure design rights and trademarks for newly developed products. Amortization expense was $150,928 and $109,517 for the years ended December 31, 2017 and 2016, respectively.

ASCENT SOLAR TECHNOLOGIES, INC.

As of December 31, 2017, future amortization of patents is expected as follows:

2018	$	173,439
2019	$	153,717
2020	$	130,885
2021	$	85,760
2022	$	56,099
Thereafter	$	40,267
	$	640,167

Impairment of Long-lived Assets: The Company analyzes its long-lived assets (property, plant and equipment) and definitive-lived intangible assets (patents) for impairment, both individually and as a group, whenever events or changes in circumstances indicate the carrying amount of the assets may not be recoverable. Events that might cause impairment would include significant current period operating or cash flow losses associated with the use of a long-lived asset or group of assets combined with a history of such losses, significant changes in the manner of use of assets and significant negative industry or economic trends. An undiscounted cash flow analysis is calculated to determine if impairment exists. If impairment is determined to exist, any related loss is calculated using the difference between the fair value and the carrying value of the assets. During the years ended December 31, 2017 and 2016, the Company did not incur impairments of its manufacturing facilities and equipment.

Interest Capitalization: Historically the Company has capitalized interest cost as part of the cost of acquiring or constructing certain assets during the period of time required to get the asset ready for its intended use. The Company capitalized interest to the extent that expenditures to acquire or construct an asset have occurred and interest cost has been incurred.

Convertible Notes: The Company issues, from time to time, convertible notes. Refer to Notes 12, 13, 14, and 15 for further information.

Convertible Preferred Stock: The Company evaluates its preferred stock instruments under FASB ASC 480, *"Distinguishing Liabilities from Equity"* to determine the classification, and thereby the accounting treatment, of the instruments. Refer to Notes 12, 16, 17, 18, 19, 20, 21, and 22 for further discussion on the classification of each instrument.

Derivatives: The Company evaluates its financial instruments under FASB ASC 815, *"Derivatives and Hedging"* to determine whether the instruments contain an embedded derivative. When an embedded derivative is present, the instrument is evaluated for a fair value adjustment upon issuance and at the end of every reporting period. Any adjustments to fair value are treated as gains and losses in fair values of derivatives and are recorded in the Consolidated Statements of Operations. Refer to Notes 12, 13, 14, 15, 17, 18, 19, and 20 for further discussion on the embedded derivatives of each instrument.

Product Warranties: The Company provides a limited warranty to the original purchaser of products against defective materials and workmanship. The Company also guarantees that standalone modules and PV integrated consumer electronics will achieve and maintain the stated conversion efficiency rating for certain products. Warranty accruals are recorded at the time of sale and are estimated based upon product warranty terms, historical experience and analysis of peer company product returns. The Company assesses the adequacy of its liabilities and makes adjustments as necessary based on known or anticipated warranty claims, or as new information becomes available.

Warrant Liability: Warrants to purchase the Company's common stock with nonstandard anti-dilution provisions, regardless of the probability or likelihood that may conditionally obligate the issuer to ultimately transfer assets, are classified as liabilities and are recorded at their estimated fair value at each reporting period. Any change in fair value of these warrants is recorded at each reporting period in Other income/(expense) on the Company's statement of operations.

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Revenue Recognition:

Product revenue - The Company generated product revenues of $642,179 and $1,699,802 for the years ended December 31, 2017 and 2016, respectively. Product revenue is generated from commercial sales of flexible PV modules and PV integrated consumer electronics, non-PV integrated power banks and associated accessories. Products are sold through the Company's own e-commerce website, online retailers, direct to retailers and indirectly to retailers through distributors. Revenue is recognized as products are shipped or delivered and title has transferred to the customer. In certain instances, the Company has agreed to refund a portion of the purchase price to customers if the Company decreases its standard retail price. The Company estimates the effect of this price protection and records the difference as a reduction of revenue at the time of sale. We also, in certain instances have provided customers with a right of return provision. In these instances, we defer the recognition of revenues until the provision period has expired. Estimated costs of returns and allowances, other than those specifically pertaining to a right of return provision, and discounts are accrued as a reduction to sales when revenue is recognized. See Marketing and Advertising Costs below for accounting treatment related to cooperative advertising programs.

Government contracts revenue - Revenue from governmental research and development contracts is generated under terms that are cost plus fee or firm fixed price. Revenue from cost plus fee contracts is recognized as costs are incurred on the basis of direct costs plus allowable indirect costs and an allocable portion of the fixed fee. Revenue from firm fixed price contracts is recognized under the percentage-of-completion method of accounting, with costs and estimated profits included in contract revenue as work is performed. If actual and estimated costs to complete a contract indicate a loss, provision is made currently for the loss anticipated on the contract.

Shipping and Handling Costs: The Company classifies shipping and handling costs for products shipped to customers as a component of “Cost of revenues” on the Company’s Consolidated Statements of Operations. Customer payments of shipping and handling costs are recorded as a component of Revenues.

Research, Development and Manufacturing Operations Costs: Research, development and manufacturing operations expenses were approximately $4.8 million and $6.6 million for the years ended December 31, 2017 and 2016, respectively. Research, development and manufacturing operations expenses include: 1) technology development costs, which include expenses incurred in researching new technology, improving existing technology and performing federal government research and development contracts, 2) product development costs, which include expenses incurred in developing new products and lowering product design costs, and 3) pre-production and production costs, which include engineering efforts to improve production processes, material yields and equipment utilization, and manufacturing efforts to produce saleable product. Research, development and manufacturing operations costs are expensed as incurred, with the exception of costs related to inventoried raw materials, work-in-process and finished goods, which are expensed as Cost of revenue as products are sold.

Marketing and Advertising Costs: The Company advertises in print, television, online and through social media. The Company will also authorize customers to run advertising campaigns on its behalf through various media outlets. Marketing and advertising costs are expensed as incurred. Marketing and advertising expenses were $189,382 and $2,164,693 for the years ended December 31, 2017 and 2016, respectively.

Share-Based Compensation: The Company measures and recognizes compensation expense for all share-based payment awards made to employees, officers, directors, and consultants based on estimated fair values. The value of the portion of the award that is ultimately expected to vest is recognized as expense over the requisite service period in the Company’s Statements of Operations. Share-based compensation is based on awards ultimately expected to vest and is reduced for estimated forfeitures. Forfeitures are estimated at the time of grant and revised, as necessary, in subsequent periods if actual forfeitures differ from those estimates. For purposes of determining estimated fair value of share-based payment awards on the date of grant the Company uses the Black-Scholes option-pricing model (“Black-Scholes Model”) for option awards. The Black-Scholes Model requires the input of highly subjective assumptions. Because the Company’s employee stock options may have characteristics significantly different from those of traded options, and because changes in the subjective input assumptions can materially affect the fair value estimate, in management’s opinion, the existing models may not provide a reliable single measure of the fair value of the Company’s employee stock options. Management will continue to assess the assumptions and methodologies used to calculate estimated fair value of share-based compensation. Circumstances may change and additional data may become available over time, which result in changes to these assumptions and methodologies, which could materially impact the Company’s fair value determination. The Company estimates the fair value of its restricted stock awards as its stock price on the grant date.

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The accounting guidance for share-based compensation may be subject to further interpretation and refinement over time. There are significant differences among option valuation models, and this may result in a lack of comparability with other companies that use different models, methods and assumptions. If factors change and the Company employs different assumptions in the accounting for share-based compensation in future periods, or if the Company decides to use a different valuation model, the compensation expense the Company records in the future may differ significantly from the amount recorded in the current period and could materially affect its loss from operations, net loss and net loss per share.

Income Taxes: Deferred income taxes are provided using the liability method whereby deferred tax assets are recognized for deductible temporary differences and operating loss and tax credit carry forwards and deferred tax liabilities are recognized for taxable temporary differences. Temporary differences are the differences between the reported amounts of assets and liabilities and their tax bases. Deferred tax assets are reduced by a valuation allowance when, in the opinion of management, it is more likely than not that some portion or all of the deferred tax assets will not be realized. Deferred tax assets and liabilities are adjusted for the effects of the changes in tax laws and rates as of the date of enactment. Interest and penalties, if applicable, would be recorded in operations.

The Company has analyzed filing positions in all of the federal and state jurisdictions where it is required to file income tax returns, as well as all open tax years (2014-2017) in these jurisdictions. The Company believes its income tax filing positions and deductions will be sustained on audit and does not anticipate any adjustments that will result in a material adverse effect on the Company's financial condition, results of operations, or cash flows. Therefore, no reserves for uncertain income tax positions have been recorded.

Net Loss per Common Share: Basic loss per share does not include dilution and is computed by dividing income available to common stockholders by the weighted average number of shares outstanding during the period. Diluted earnings per share reflect the potential securities that could share in the earnings of the Company, similar to fully diluted earnings per share. Common stock equivalents outstanding as of December 31, 2017 and 2016 of approximately 3.0 billion and 301.1 million shares have been omitted from loss per share because they are anti-dilutive. Common stock equivalents consist of stock options, unvested restricted stock, warrants, preferred stock, preferred stock make-whole dividend liability amounts (assuming the make-whole dividend liability is paid in common stock in lieu of cash), and convertible notes (assuming the amortization payments are paid in common stock in lieu of cash). Net loss per common share was the same for both basic and diluted methods for the periods ended December 31, 2017 and 2016.

Fair Value Estimates: Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. Valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. The Company uses fair value hierarchy based on three levels of inputs, of which, the first two are considered observable and the last unobservable, to measure fair value:

- Level 1 - Quoted prices in active markets for identical assets or liabilities.
- Level 2 - Inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.
- Level 3 - Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

Certain long-lived assets and current liabilities have been measured at fair value on a recurring and non-recurring basis. See Note 6. Property, Plant and Equipment, Note 10. Secured Promissory Note, Note 12. July 2016 Convertible Notes and Series H Preferred Stock, Note 13. October 2016 Convertible Notes and Exchange of Series A Preferred Stock, Note 13. St. George Convertible Note, Note 15. BayBridge Convertible Note, Note 17. Series E Preferred Stock, Note 18. Series F Preferred Stock, Note 19. Series G Preferred Stock, Note 20. Series I Preferred Stock and Series I Convertible Notes, Note 21. Series J Preferred Stock and Series J-1 Preferred Stock, and Note 23.

Make-whole Dividend Liability. The carrying amount of our long term debt outstanding approximates fair value because our current borrowing rate does not materially differ from market rates for similar bank borrowings. The carrying value for cash and cash equivalents, restricted cash, accounts receivable, accounts payable, accrued expenses and other assets and liabilities approximate their fair values due to their short maturities.

Related Party Transactions: One of the Company's named shareholders is Tertius Financial Group Pte Ltd, of which Mr. Victor Lee, President and Chief Executive Officer of the Company, is Managing Director and 50% shareholder. Accounting for transactions under these agreements is consistent with those defined in our Significant Accounting Policies. See Notes 11 and 27 for further information.

Use of Estimates: The preparation of financial statements in conformity with U.S. generally accepted accounting principles ("GAAP") requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Recently Issued Accounting Standards

In May 2014, the FASB issued ASU No. 2014-09, *Revenue from Contracts with Customers (Topic 606)*. The update will establish a comprehensive revenue recognition standard for virtually all industries in GAAP. ASU 2014-09 will change the amount and timing of revenue and cost recognition, implementation, disclosures and documentation. In August 2015, the FASB issued ASU No. 2015-14, *Revenue from Contracts with Customers (Topic 606): Deferral of Effective Date.* The amendments in ASU 2015-14 defer the effective date of ASU 2014-09 for all entities by one year. ASU 2014-09 is now effective for the Company in fiscal year 2018. The Company has evaluated ASU 2014-09, and it will not have a material effect on the Company's consolidated financial statements.

In February 2016, the FASB issued ASU No. 2016-02, *Leases (Topic 842)*. ASU 2016-02 requires lessees to recognize all leases, including operating leases, on the balance sheet as a lease asset or lease liability, unless the lease is a short-term lease. ASU 2016-02 also requires additional disclosures regarding leasing arrangements. ASU 2016-02 is effective for interim periods and fiscal years beginning after December 15, 2018, and early application is permitted. The Company continues to evaluate the impact, that the adoption of this guidance will have on its consolidated financial statements.

In March 2016, the FASB issued ASU 2016-09, *Improvements to Employee Share-Based Payment Accounting*, which simplifies several aspects of the accounting for share-based payment transactions, including 1) accounting for income taxes, 2) classification of excess tax benefits in the statement of cash flows, 3) forfeitures, 4) minimum statutory tax withholding requirements, 5) cash flow classification of employee taxes withheld in the form of shares, 6) the practical expedient for estimating the expected term, and 7) intrinsic value. The guidance is effective for annual reporting periods beginning after December 15, 2016, and interim periods within those annual periods. The implementation of ASU 2016-09 did not have a material effect on the Company's consolidated financial statements.

In May 2017, the FASB issued ASU No. 2017-09, *Compensation - Stock Compensation (Topic 718)*. ASU 2017-09 provides guidance about which changes to the terms or conditions of a share-based payment award require an entity to apply modification accounting in Topic 718. ASU 2017-09 is effective for interim periods and fiscal years beginning after December 15, 2017, and early application is permitted. The Company continues to evaluate the impact, if any, that the adoption of this guidance will have on its consolidated financial statements, but does not expect the effect, if any, will be material.

In July 2017, the FASB issued ASU No. 2017-11 *Part I, Earnings Per Share (Topic 260), Distinguishing Liabilities from Equity (Topic 480), Derivatives and Hedging (Topic 815)*. ASU 2017-11 Part I changes the classification analysis of certain equity linked financial instruments with down round features. ASU 2017-11 Part I is effective, for public business entities, for interim periods and fiscal years beginning after December 15, 2018, and early application is permitted. The Company is currently evaluating the impact, if any, that the adoption of this guidance will have on its consolidated financial statements.

NOTE 4. LIQUIDITY, CONTINUED OPERATIONS, AND GOING CONCERN

During the years ended December 31, 2017 and 2016, the Company entered into multiple financing agreements to fund operations. Further discussion of these transactions can be found in Notes 8, 10, 11, 12, 13, 14, 15, 17, 18, 19, 20, 21, and 22.

The Company has continued PV production at its manufacturing facility. The Company does not expect that sales revenue and cash flows will be sufficient to support operations and cash requirements until it has fully implemented its product strategy. During the year ended December 31, 2017 the Company used approximately $12.6 million in cash for operations. The Company's primary significant long term cash obligation consists of a note payable of approximately $5.5 million to a financial institution secured by a mortgage on its headquarters and manufacturing building in Thornton, Colorado. Total payments of approximately $0.7 million, including principal and interest, will come due in the remainder of 2017.

The Company's consolidated financial statements have been prepared assuming that it will continue as a going concern, which contemplates continuity of operations, realization of assets, and liquidation of liabilities in the normal course of business. As of December 31, 2017, the Company has negative working capital. As such, cash liquidity sufficient for the year ending December 31, 2018 will require additional financing.

The Company continues to accelerate sales and marketing efforts related to its consumer and military solar products and specialty PV application strategies through expansion of its sales and distribution channels. The Company has begun activities related to securing additional financing through strategic or financial investors, but there is no assurance the Company will be able to raise additional capital on acceptable terms or at all. If the Company's revenues do not increase rapidly, and/or additional financing is not obtained, the Company will be required to significantly curtail operations to reduce costs and/or sell assets. Such actions would likely have an adverse impact on the Company's future operations.

As a result of the Company’s recurring losses from operations, and the need for additional financing to fund its operating and capital requirements, there is uncertainty regarding the Company’s ability to maintain liquidity sufficient to operate its business effectively, which raises substantial doubt as to the Company’s ability to continue as a going concern.

Management cannot provide any assurances that the Company will be successful in accomplishing any of its plans. These consolidated financial statements do not include any adjustments that might be necessary should the Company be unable to continue as a going concern.

NOTE 5. TRADE RECEIVABLES

Trade receivables, net consist of amounts generated from product sales and government contracts. Accounts receivable totaled $6,658 and $549,204 as of December 31, 2017 and 2016, respectively.

Provisional Indirect Cost Rates - The Company bills the government under cost-based research and development contracts at provisional billing rates which permit the recovery of indirect costs. These rates are subject to audit on an annual basis by the government agencies’ cognizant audit agency. The cost audit may result in the negotiation and determination of the final indirect cost rates. In the opinion of management, re-determination of any cost-based contracts will not have a material effect on the Company’s financial position or results of operations.

NOTE 6. PROPERTY, PLANT AND EQUIPMENT

The following table summarizes property, plant and equipment as of December 31, 2017 and December 31, 2016:

	As of December 31,	
	2017	2016
Building	$ 5,828,960	$ 5,828,960
Furniture, fixtures, computer hardware and computer software	489,421	489,421
Manufacturing machinery and equipment	30,327,481	30,321,079
Depreciable property, plant and equipment	36,645,862	36,639,460
Less: Accumulated depreciation and amortization	(32,013,686)	(30,983,448)
Net property, plant and equipment	$ 4,632,176	$ 5,656,012

The Company analyzes its long-lived assets for impairment, both individually and as a group, whenever events or changes in circumstances indicate that the carrying amount of the assets may not be recoverable.

Depreciation expense for the years ended December 31, 2017 and 2016 was $1,030,237 and $3,486,741, respectively. Depreciation expense is recorded under “Depreciation and amortization expense” in the Consolidated Statements of Operations.

NOTE 7. INVENTORIES

Inventories consisted of the following at December 31, 2017 and December 31, 2016:

	As of December 31,	
	2017	2016
Raw materials	$ 689,000	$ 833,000
Work in process	12,000	635,000
Finished goods	337,000	1,102,000
Total	$ 1,038,000	$ 2,570,000

NOTE 8. NOTES PAYABLE

On February 24, 2017, the Company entered into an agreement with a vendor to convert the balance of their account into three notes payable in the aggregate amount of $765,784. The notes bear interest of 6% per annum and matures on February 24, 2018; all outstanding principal and accrued interest is due and payable upon maturity. As of December 31, 2017, the Company had not made any payments on these notes and the accrued interest was $39,565. As of the date of this filing, this note has matured and is due and payable on demand.

On February 27, 2017, the Company entered into an agreement with a vendor to convert the balance of their account into a note payable in the amount of $49,500. The note bears interest of 6% per annum and matures on September 27, 2017; all outstanding principal and accrued interest is due and payable upon maturity. On September 27, 2017, the Company paid the note, plus $1,725 in accrued interest, in full.

On March 23, 2017, the Company entered into an agreement with a vendor to convert the balance of their account into a note payable in the amount of $356,742. The note bears interest of 5% per annum and matures on October 23, 2017; all outstanding principal and accrued interest is due and payable upon maturity. On October 23, 2017, the Company amended its promissory note with this vendor. The amendment extended the note's maturity to November 6, 2017. Again on December 12, 2017, the Company amended its promissory note with this vendor. The amendment extended the note's maturity to March 31, 2018. As of December 31, 2017, the Company had not made any payments on the note and the accrued interest was $13,830.

On June 30, 2017, the Company entered into an agreement with a vendor to convert the balance of their account into a note payable in the amount of $250,000. The note bears interest of 5% per annum and matures on February 28, 2018; all outstanding principal and accrued interest is due and payable upon maturity. As of December 31, 2017, the Company had not made any payments on these notes and the accrued interest was $6,301. As of the date of this filing, this note has matured and is due and payable on demand.

On September 30, 2017, the Company entered into a settlement agreement with a customer to convert the credit balance of their account into a note payable in the amount of $215,234. The note bears interest of 5% per annum and matures on September 30, 2018. Per the settlement agreement, monthly payments of $18,426 were to commence on October 30, 2017. As of December 31, 2017, one of the monthly payments had been made and the remaining principal and interest balances were $197,705 and $2,540, respectively.

NOTE 9. DEBT

On February 8, 2008, the Company acquired a manufacturing and office facility in Thornton, Colorado, for approximately $5.5 million. The purchase was financed by a promissory note, deed of trust and construction loan agreement (the “Construction Loan”) with the Colorado Housing and Finance Authority (“CHFA”), which provided the Company borrowing availability of up to $7.5 million for the building and building improvements. In 2009, the Construction Loan was converted to a permanent loan pursuant to a Loan Modification Agreement between the Company and CHFA (the “Permanent Loan”). The Permanent Loan, collateralized by the building, has an interest rate of 6.6% and the principal will be amortized through its term to January 2028. Further, pursuant to certain covenants in the Permanent Loan, the Company may not, among other things, without CHFA’s prior written consent (which by the terms of the deed of trust is subject to a reasonableness requirement): create or incur additional indebtedness (other than obligations created or incurred in the ordinary course of business); merge or consolidate with any other entity; or make loans or advances to the Company’s officers, shareholders, directors or employees.

On November 1, 2016, the Company and the CFHA agreed to modify the original agreement described above with the addition of a forbearance period. Per the modification agreement, no payments of principal and interest shall be due under the note during the forbearance period commencing on November 1, 2016 and continuing through April 1, 2017. The amount of interest that should have been paid by the Company during the forbearance period in the total amount of $180,043 shall be added to the outstanding principal balance of the note. As a result, on May 1, 2017, the principal balance of the note was $5,704,932. Commencing on May 1, 2017, the monthly payments of principal and interest due under the note resumed at $57,801, and the Company shall continue to make such monthly payments over the remaining term of the note ending on February 1, 2028.

As of December 31, 2017, future principal payments on long-term debt are due as follows:

2018	$	343,395
2019		366,757
2020		391,709
2021		418,358
2022		446,821
Thereafter		3,494,779
	$	5,461,819

NOTE 10. SECURED PROMISSORY NOTE

On November 30, 2017, the Company, entered into a note purchase and exchange agreement (the “Note SPA”) with Global Ichiban Ltd (“Investor”), for the private placement of up to $2,000,000 of the Company’s Secured Convertible Promissory Notes (“Notes”) in exchange for $2,000,000 of gross proceeds in several tranches through June 2018, The closing of each tranche is conditioned upon the Company having an average daily trading volume for its Common Stock of at least $50,000 for the 20 trading day period preceding such future tranche closing dates.

Pursuant to the terms of the Note SPA, the Company and the Investor also agreed to exchange certain outstanding securities held by the Investor for additional Notes. As of November 30, 2017, the Investor surrendered for cancellation (i) its outstanding promissory note dated September 13, 2017 ($3,359,539 principal and accrued interest), (ii) its outstanding promissory note dated October 31, 2017 ($252,466 principal and accrued interest), and (iii) its 400 shares of outstanding Series J Preferred Stock ($445,222 of capital and accrued dividends). In exchange, the Company issued to the Investor $4,057,227 aggregate principal amount of additional Notes. Please refer to Note 11 for further discussion on the canceled promissory notes and Note 21 on the canceled Series J Preferred Stock shares.

Of the Notes issued on November 30, 2017, $3,359,539 aggregate principal amount will mature on December 15, 2020. Principal and interest will be payable in 36 equal monthly installments beginning January 15, 2018.

Of the Notes issued on November 30, 2017, $697,688 aggregate principal amount will mature on November 30, 2018. Principal and interest will be payable upon maturity.

The $2,000,000 aggregate principal amount of Notes to be issued in the future in tranches pursuant to the Note SPA will mature on the first anniversary of the respective issuance date. Principal and interest will be payable upon maturity. As of December 31, 2017, the closing dates, closing amounts, and maturity dates on completed Note SPA tranches are as follows:

Closing Date	Closing Amount		Maturity Date
11/30/2017	$	250,000	11/30/2018
12/28/2017	$	250,000	12/28/2018

The Notes will be secured by a security interest on substantially all of the Company’s assets, bear interest at a rate of 12% per annum and contain standard and customary events of default including but not limited to: (i) failure to make payments when due under the Notes, and (ii) bankruptcy or insolvency of the Company. There are no registration rights applicable to the Notes.

All principal and accrued interest on the Notes are convertible at any time, in whole or in part, at the option of the Investor into shares of Common Stock at a variable conversion price equal to the lowest of (i) 85% of the average

VWAP for the shares over the prior 5 trading days, (ii) the closing bid price for the shares on the prior trading day, or (iii) $0.002 per share

The Notes may not be converted and shares of Common Stock may not be issued pursuant to the Notes if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 9.99% of the outstanding shares of Common Stock.

As of December 31, 2017, the principal and interest balance of the Notes were $4,557,227 and $44,134, respectively

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Pursuant to a number of factors outlined in ASC Topic 815, *Derivatives and Hedging*, the conversion option in the Notes were deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. The fair value measurements rely primarily on Company-specific inputs and the Company's own assumptions. With the absence of observable inputs, the Company determined these recurring fair value measurements reside primarily within Level 3 of the fair value hierarchy. The derivative associated with the Notes approximates management's estimate of the fair value of the embedded derivative liability based on using a Monte Carlo simulation following a Geometric Brownian Motion with the following assumptions identified below.

Due to the varying terms and varying issue dates, the tranches of this instrument were broken into three separate instruments for valuation purposes.

1) The first valuation was done on the November 30, 2017 Note with term of three years. Management's analysis, using the following assumptions: annual volatility of 63% present value discount rate of 12% and a dividend yield of 0%, resulted in a fair value of the embedded derivative associated with this Note of $2,756,074 as of November 30, 2017. The value of the embedded derivative associated with the Note was recorded as a debt discount.

2) The second valuation was done on the group of Notes dated November 30, 2017, that had a term of one year. Management's analysis, using the following assumptions: annual volatility of 67% present value discount rate of 12% and a dividend yield of 0%, resulted in a fair value of the embedded derivative associated with these Notes of $943,735 as of November 30, 2017. The value of the embedded derivative associated with the Note was recorded as a debt discount.

3) The third valuation was done on the Note dated December 28, 2017, which had a term of one year. Management's analysis, using the following assumptions: annual volatility of 65% present value discount rate of 12% and a dividend yield of 0%, resulted in a fair value of the embedded derivative associated with this Note of $267,008 as of December 28, 2017. Since the value of the derivative was more than the liability, the entire liability of $250,000 was recorded as a debt discount to be amortized with the liability. The remaining balance of $17,008 was charged to interest expense.

The derivative liability associated with the Notes is subject to revaluation on a quarterly basis to reflect the market value change of the embedded conversion option. At December 31, 2017, the Company conducted a fair value assessment of the embedded derivative associated with the three valuation groups discussed above.

1) For the November 30, 2017 3yr Note: Management conducted a fair value assessment with the following assumptions: annual volatility of 63% present value discount rate of 12% and a dividend yield of 0% as of December 31, 2017. As a result of the fair value assessment, the Company recorded a loss of $985,928 as "Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net" in the Consolidated Statements of Operations to properly reflect the fair value of the embedded derivative of $3,742,002 as of December 31, 2017.

2) For the November 30, 2017 1yr Notes: Management conducted a fair value assessment with the following assumptions: annual volatility of 60% present value discount rate of 12% and a dividend yield of 0% as of December 31, 2017. As a result of the fair value assessment, the Company recorded a gain of $55,567 as "Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net" in the Consolidated Statements of Operations to properly reflect the fair value of the embedded derivative of $888,168 as of December 31, 2017.

3) There were no changes to the December 28, 2017 1yr note, as there was only one trading day for the year following the issuance.

During the fourth quarter of 2017, a net loss of $930,361 had been recorded to reflect the total derivative liability of $4,897,178 as of December 31, 2017.

NOTE 11. PROMISSORY NOTES

Tertius Financial Group Notes and Exchange

On August 29, 2016, the Company entered into a note purchase agreement with Tertius Financial Group Pte. Ltd. ("TFG”) for the private placement of $330,000 of the Company’s original issue discount notes with an original maturity date of November 29, 2016. The notes bear interest of 6% per annum and principal and interest on the notes are payable upon maturity. The notes are unsecured and not convertible into equity shares of the Company.

On December 6, 2016, the Company issued a new $600,000 original issue discount note to TFG in exchange for (i) $200,000 of additional gross proceeds and (ii) cancellation of the existing outstanding $330,000 note. The new TFG note bears interest at a rate of 6% per annum and matures on December 31, 2017. Principal and interest on the new TFG note is payable at maturity. Following the transaction, the outstanding balance of the new note was $602,000 (including accrued and unpaid interest) with a discount of $60,000.

On January 19, 2017, the Company issued 333,333,333 shares of unregistered common stock in a private placement to TFG pursuant to a Securities Purchase Agreement (the "SPA").

Pursuant to the SPA, the Company issued the 333,333,333 shares to TFG in exchange for cancellation of its $600,000 promissory note (including accrued interest of $4,340) that was issued by the Company on December 6, 2016. The SPA does not provide any registration rights for the shares issued to TFG.

TFG is a Singapore based entity controlled and 50% owned by Ascent's President & CEO, Victor Lee, and owns approximately 3% of the Company's outstanding shares at December 31, 2017.

Offering of Unsecured Promissory Notes

Between December 2016 and April 2017, the Company initiated eleven non-convertible, unsecured promissory notes with a private investor with varying principal amounts aggregating to $3,400,000. The promissory notes bear interest of 12% per annum and mature six months from the respective dates of issuance, ranging from June 2, 2017 to October 21, 2017. Unless paid in advance, the principal and interest of these promissory notes are payable upon maturity. The notes are not convertible into equity shares of the Company and are unsecured.

Between June and August, 2017, eight of the promissory notes described above matured. The Company and the private investor agreed to pay the interest accrued on these notes, as of the maturity dates, and extend the notes another three months without the Company being in default. Through August 30, 2017, $143,148 interest was paid.

On September 13, 2017, the Company and the investor entered into a Promissory Note Exchange Agreement. Pursuant to the agreement, the Investor exchanged and canceled the eleven outstanding promissory notes (with an aggregate principal and accrued interest of $3,504,199) for one new promissory note having a principal amount of approximately $3,504,199.

The new note has a term of three years, bears interest at a rate of 12% per annum, and calls for monthly installment payments of $116,390 commencing on October 13, 2017. The Company has the option to pay monthly installment amounts in the form of shares of common stock. Payments in the form of shares would be calculated using a variable conversion price equal to the lowest of (i) 85% of the average VWAP for the shares over the prior five trading days, (ii) the closing bid price for the shares on the prior trading day, or (iii) $0.004 per share. The Company may not make payments in the form of shares of Common Stock if, after giving effect to the issuance, the holder together with its affiliates would beneficially own in excess of 9.99% of the outstanding shares of Common Stock.

On November 30, 2017, the terms of this note were canceled and the remaining principal and accrued interest balance of $3,359,539 was combined with other instruments into a new Securities Purchase Agreement and secured note with the same investor. Please see Note. 10 for more information.

Offering of Unsecured, Non-Convertible Notes

During October 2016, the Company received $420,000 from a separate private investor. These funds, along with $250,000 of additional funding, were rolled into a promissory note, executed on January 17, 2017, in the amount of $700,000 issued with a discount of $30,000 which will be charged to interest expense ratably over the term of the note. The note bears interest at 12% per annum and matures on July 17, 2017. Principal and interest on this note are payable at maturity. This note is not convertible into equity shares of the Company and is unsecured.

On June 30, 2017, the Company and the private investor agreed to a twelve month payment plan on the balance of this promissory note. Interest will continue to accrue on this note at 12% per annum and payments of approximately $62,000 will be made monthly beginning in July 2017. Four monthly payments were made between July and October of 2017.

As of December 31, 2017, $205,563 of principal and $45,414 of interest had been paid on this note. The outstanding principal and accrued interest balances on the note as of December 31, 2017 were $494,437 and $27,126, respectively.

On April 6, 2017, the Company initiated a non-convertible, unsecured promissory note with a private investor for $103,000 in exchange for proceeds of $100,000. The discount of $3,000 will be charged to interest expense ratably over the term of the note. The promissory note bears interest of 10% per annum and matures on October 6, 2017. On October 6, 2017, the Company and its investor entered into a Promissory Note Exchange Agreement to convert a promissory note with a principal balance of $103,000 and accrued interest of $5,233 in to common shares. Per the terms of the agreement, the promissory note was canceled and 72,500,000 shares were issued.

On May 8, 2017, the Company initiated a non-convertible, unsecured promissory note with a private investor for $125,000. The promissory note bears interest of 12% per annum and matures on September 8, 2017. On September 8, 2017, the Company redeemed this note, in full, for cash.

On October 31, 2017, the Company initiated a non-convertible, unsecured promissory note with a private investor for $250,000 . The promissory note bears interest of 12% per annum and matures on January 31, 2018. On November 30, 2017, the terms of this note were canceled and the remaining principal and accrued interest balance of $252,466 was combined with other instruments into a new Securities Purchase Agreement and secured note with the same investor. Please see Note. 10 for more information.

On November 16, 2017, the Company initiated a non-convertible, unsecured promissory note with a private investor for $275,000. The promissory note was issued with an original issue discount of $25,000, resulting in proceeds to the company of $250,000. The note does not have a stated interest rate and matures on December 18, 2017. As of December 31, 2017, no payments had been made on this note and the discount had been recorded as interest expense.

During December 2017, the Company received aggregate proceeds of $177,500, from a private investor. These proceeds were incorporated into a promissory note on January 31, 2018. Please refer to Note 30 for further information on this note.

NOTE 12. SERIES H PREFERRED STOCK AND JULY 2016 CONVERTIBLE NOTES

Series H Preferred Stock

On June 9, 2016, the Company entered into a securities purchase agreement with a private investor to issue 2,500 shares of Series H Preferred Stock for $2,500,000. The Company received gross proceeds of $250,000 at Closing. Additional gross proceeds of $580,000 were received by the Company through July 7, 2016. The Company agreed to exchange outstanding Series H Preferred Stock for Senior Secured Convertible Notes ("July 2016 Notes") on July 13, 2016. At the date of the exchange, the Company had sold and issued 830 shares of Series H Preferred Stock to the private investor in exchange for $830,000 of gross proceeds. Please see the section below for details of the exchange.

July 2016 Convertible Notes

On July 13, 2016, the Company entered into a securities purchase agreement (the "Note SPA") with the private investor for the private placement of $2,082,600 of the Company's 4% Original Issue Discount Senior Secured Convertible Promissory Notes (the "July 2016 Convertible Notes"). On July 13, 2016, the Company sold and issued $364,000 principal amount of notes to the investor in exchange for $350,000 of gross proceeds. The Company sold and issued the remaining $1,718,600 principal amount of July 2016 Convertible Notes to the investor in exchange for $1,650,000 of gross proceeds in weekly tranches between July and September 2016.

The Company and the private investor also entered into an Exchange Agreement dated July 13, 2016 (the "Exchange Agreement"). Under the terms of the Exchange Agreement, the outstanding shares of Series H Preferred Stock (approximately $833,000 of capital and accrued dividends) were canceled. In exchange, the Company issued to the private investor approximately $866,000 of July 2016 Convertible Notes. There were 830 shares of Series H Preferred Stock outstanding as of the date of the Exchange Agreement.

Unless earlier converted or prepaid, all of the July 2016 Convertible Notes will mature July 13, 2017 . The July 2016 Convertible Notes bear interest at a rate of 10% per annum, subject to increase to 24% per annum upon the occurrence and continuance of an event of default. Principal on the July 2016 Convertible Notes is payable on the Maturity Date. Interest on the July 2016 Convertible Notes is payable quarterly. Principal and interest are payable in cash or, if specified equity conditions are met, shares of Common Stock.

The July 2016 Convertible Notes are secured by a security interest in substantially all of the Company's assets. The subsidiaries of the Company have guaranteed the Company's obligations under the July 2016 Convertible Notes.

The July 2016 Convertible Notes contain standard and customary events of default including but not limited to: (i) failure to make payments when due under the July 2016 Convertible Notes; (ii) bankruptcy or insolvency of the Company; and (iii) failure to file a registration statement by October 9, 2016.

On October 10, 2016 the Company had not been successful in filing the registration statement triggering an event of default per the July 2016 Note Agreement. Upon default the interest rate increases to 24% per annum and the holder of the July 2016 Notes has the option to accelerate the Note and demand cash payment of the Mandatory Default Amount consisting of a 25% premium of the principal balance plus any accrued and unpaid interest. The Company began accruing interest at the rate of 24% on October 10, 2016.

Forbearance and Settlement Agreement on July 2016 Convertible Notes

On May 5, 2017, the Company entered into a Forbearance and Settlement Agreement ("Forbearance Agreement") with a holder of certain secured convertible notes that are in default due to various triggering events. The holder and the Company agreed to forbear from taking any action provided for under the secured convertible notes in exchange for the following terms provided in this agreement:

- The Company agreed to redeem for cash all secured convertible notes of the Company held by the holder no later than September 1, 2017.

- The Company affirmed that the current balance of owed principal and accrued and unpaid interest to the holder is $1,790,214 as of May 2, 2017.

- The redemption price for such secured convertible notes shall be 120% (if redeemed on or prior to August 15, 2017) or 125% (if redeemed after August 15, 2017) of the then outstanding principal, plus any accrued and unpaid interest.

- During the month of May 2017, the Holder agreed to limit its conversions of outstanding Company secured convertible notes to $50,000 per calendar week of principal/interest.

- During the months of June, July and August 2017, the holder agreed to limit its conversions of outstanding Company secured convertible notes to $75,000 per calendar week of principal/interest.

- During the months of May, June, July and August 2017, the holder agreed that all outstanding Company secured convertible notes shall bear interest at the normal stated rate of 10%, rather than default rate of 24%.

- All conversions during the months of May, June, July and August 2017 will be at the “triggering event” discount conversion price as stated in the secured convertible notes, and will continue at the “triggering event” discount price until, if and when the notes are redeemed.

- Should the Company fail to redeem for cash all secured convertible notes on or before September 1, 2017, default interest and normal stated interest will accrue from the date of execution of this agreement.

All principal and accrued interest on the July 2016 Convertible Notes are convertible at any time, in whole or in part, at the option of the private investor, into shares of Common Stock at a variable conversion price equal to the lowest of (i) $0.045 (the “Fixed Conversion Price”), (ii) 70% of the lowest volume weighted average price (“VWAP”) of the Company's common stock for the ten consecutive trading day period prior to the conversion date or (iii) 70% of the lowest closing bid price of the Company's common stock for the ten consecutive trading day period prior to the conversion date. If certain defined triggering events occur, the conversion price would thereafter be reduced (and only reduced), to equal 60% of the lower of (i) the lowest closing bid price of the Company's common stock for the thirty consecutive trading day period prior to the conversion date or (ii) the lowest VWAP of the the Company's common stock for the thirty consecutive trading day period prior to the conversion date. In addition, on the 90th day and also on the 180th day from the date of the Note SPA, the private investor may reset the Fixed Conversion Price to thereafter be equal to the VWAP of the Common Stock for such day or if such 90th or 180th day is not a trading day, then the VWAP for the immediately preceding trading day.

The following table summarizes the conversion activity on the principal of the July 2106 Convertible Notes:

Conversion Period	Principal Converted	Common Shares Issued
Q4 2016	$ 152,460	64,000,000
Q1 2017	1,017,732	959,704,543
Q2 2017	682,235	1,865,043,998
	$ 1,852,427	2,888,748,541

In addition to the $1,852,427 in principal conversions, $3,960 of interest was converted during 2017. As of December 31, 2017, with $1,096,600 of principal payments, $400,017 of interest payments, and $219,320 of redemption penalty payments, the July 2016 Convertible notes had been redeemed in full. The difference in the accrued interest and the paid interest, due to the terms of the settlement agreement, was $22,661 which was credited to interest expense upon full redemption of the instrument.

Pursuant to a number of factors outlined in ASC Topic 815, *Derivatives and Hedging*, the conversion option in the July 2016 Convertible Notes was deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. At December 31, 2016 the fair value of the derivative liability was $3,733,348.

Throughout 2017, the Company recorded the fair value changes of the embedded derivative associated with the July 2016 Convertible Notes as a gain or loss in the "Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net" in the Condensed Consolidated Statements of Operations. The net gain recorded for the year ended December 31, 2017 was $3,733,348, to properly reflect the elimination of the embedded derivative upon the extinguishment of the liability.

NOTE 13. OCTOBER 2016 CONVERTIBLE NOTES AND EXCHANGE OF SERIES A PREFERRED STOCK

October 2016 Convertible Notes

On October 5, 2016, the Company entered into a securities purchase agreement with a private investor ("Adar Bays") for the private placement of $330,000 principal amount of October 2016 Convertible Notes. At Closing, the Company sold and issued $330,000 principal amount of October 2016 Convertible Notes to Adar Bays in exchange for $300,000 of gross proceeds.

Unless earlier converted or prepaid, the October 2016 Convertible Notes will mature December 31, 2017 (the "Maturity Date"). The October 2016 Convertible Notes bear interest at a rate of 6% per annum, subject to increase to 24% per annum upon the occurrence and continuance of an event of default (as described below). Principal and accrued interest on the October 2016 Convertible Notes is payable on the Maturity Date.

All principal and accrued interest on the October 2016 Convertible Notes are convertible at any time, in whole or in part, at the option of Adar Bays, into shares of common stock at a variable conversion price equal to 80% of the lowest closing bid price of the Company's common stock for the 15 consecutive trading day period prior to the conversion date. After the six month anniversary of the issuance of any October 2016 Convertible Note, the conversion price for such note shall thereafter be equal to 50% of the lowest closing bid price of the Company's common stock for the 15 consecutive trading day period prior to the conversion date.

The October 2016 Convertible Notes contain standard and customary events of default including but not limited to: (i) failure to make payments when due under the October 2016 Convertible Notes; and (ii) bankruptcy or insolvency of the Company.

Outstanding principal and accrued interest on the October 2016 Convertible Notes were $330,000 and $24,860, respectively as of December 31, 2017.

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Pursuant to a number of factors outlined in ASC Topic 815, *Derivatives and Hedging*, the conversion option in the October 2016 Convertible Notes were deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. At closing, a derivative liability and a corresponding debt discount in the amount of $330,000 was recorded. The fair value of the derivative was greater than the face value at issuance and the difference of $341,114 was charged to interest expense at issuance. The remaining debt discount will be charged to interest expense ratably over the life of the October 2016 Convertible Notes. As of December 31, 2016, the fair value of the derivative liability was $544,746.

The derivative liability associated with the October 2016 Convertible Notes is subject to revaluation on a quarterly basis to reflect the market value change of the embedded conversion option. At December 31, 2017, the Company conducted a fair value assessment of the embedded derivative associated with the October 2016 Convertible Notes. As a result of the fair value assessment, the Company recorded a $279,442 loss as "Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net" in the Condensed Consolidated Statements of Operations for the three months ended December 31, 2017. The net loss recorded for the year ended December 31, 2017 was $27,897, to properly reflect the fair value of the embedded derivative of $572,643 as of December 31, 2017.

The fair value measurements rely primarily on Company-specific inputs and the Company's own assumptions. With the absence of observable inputs, the Company determined these recurring fair value measurements reside primarily within Level 3 of the fair value hierarchy. The derivative associated with the October 2016 Convertible Notes approximates management's estimate of the fair value of the embedded derivative liability at December 31, 2017 based on using a Monte Carlo simulation following a Geometric Brownian Motion with the following assumptions: annual volatility of 65% present value discount rate of 12% and dividend yield of 0%.

Exchange of Outstanding Series A Preferred Stock for Convertible Notes

In 2013, the Company completed private placement to one accredited investor (the "Series A Holder") of its Series A Convertible Preferred Stock. Prior to the exchange agreement described below the Company had $165,541 shares of Series A Preferred Stock that remained outstanding as of October 6, 2016.

On October 6, 2016, the Series A Holder entered into an exchange agreement (the "Exchange Agreement") with Adar Bays. Pursuant to the exchange agreement, beginning December 5, 2016, Adar Bays has the option to exchange, from time to time, all or any portion of the October 2016 Convertible Notes for outstanding shares of Series A Preferred Stock from the Series A Holder.

As of March 31, 2017, Adar Bays had elected to exchange all outstanding October 2016 Convertible Notes, in accordance with the exchange agreement, and the Series A Holder held $330,000 of the October 2016 Convertible Notes.

NOTE 14. ST. GEORGE CONVERTIBLE NOTE

On September 8, 2017, the Company entered into a securities purchase agreement with St. George Investments, LLC ("Investor"), for the private placement of $1,725,000 principal amount of the Company's Original Issue Discount Convertible Promissory Notes.

On September 11, 2017, the Company sold and issued $1,725,000 principal amount of the convertible notes to the Investor in exchange for $1,500,000 of gross proceeds, and paid $20,000 in financing costs. The original issue discount of $225,000, and the financing fee, will be charged to interest expense, ratably, over the life of the note.

Unless earlier converted or prepaid, the convertible notes will mature on March 11, 2019. The notes do not bear interest in the absence of an event of default.

For the first six months after the issuance of the notes, the Company will make a monthly cash repayment on the notes of approximately $96,000. Thereafter, the Investor may request that the Company make monthly partial redemptions of the note up to $150,000 per month. If the Investor does not request the full $150,000 redemption amount in any one month, the unused portion of such monthly redemption amount can be added to future monthly redemption amounts. But in no event can the amount requested by the Investor for any one month exceed $275,000.

Redemption amounts are payable by the Company in cash. Beginning ten months after the issuance of the convertible notes, cash redemption payments by the Company will be subject to a 15% redemption premium.

Beginning six months after the issuance of the convertible notes, the Company also has the option (subject to customary equity conditions) to pay redemption amounts in the form of shares of common stock. Payments in the form of shares would be calculated using a variable conversion price equal to the lower of (i) 85% of the average VWAP for the shares over the prior 5 trading days or (ii) the closing bid price for the shares on the prior trading day.

All principal and accrued interest on the Notes are convertible at any time, in whole or in part, at the option of the Investor into shares of Common Stock at a fixed conversion price of $0.004 per share.

The Notes contain standard and customary events of default including but not limited to: (i) failure to make payments when due under the Notes; and (ii) bankruptcy or insolvency of the Company. Upon the occurrence of an event of default, the Notes will begin to bear interest at the rate of 22% per annum. In addition, upon the occurrence of an event of default, the Investor has the option to increase the outstanding balance of the Notes by 25%.

In connection with the closing under the Note SPA, the Company issued $37,500,000 unregistered shares of common stock to the Investor as an origination fee. The closing stock price on the date of close was $0.0017 resulting in an interest expense of $63,750 being recorded as of the date of close.

The Notes may not be converted and shares of Common Stock may not be issued pursuant to the Notes if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 4.99% of the outstanding shares of Common Stock. Per the conditions of the SPA, a reserve of 1.88 billion shares was set up out of our authorized and unissued shares.

During the fourth quarter of 2017, we made cash payments of $191,667 on this note, and as of December 31, 2017, the principal balance on this note was $1,705,833. In lieu of making the December 2017 payment, the share reserve was increased by 3 billion shares.

Pursuant to a number of factors outlined in ASC Topic 815, *Derivatives and Hedging*, the conversion option in the Notes were deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. At closing, a derivative liability and a corresponding debt discount in the amount of $468,095 was recorded.

The derivative liability associated with the Notes is subject to revaluation on a quarterly basis to reflect the market value change of the embedded conversion option. At December 31, 2017, the Company conducted a fair value assessment of the embedded derivative associated with the Notes. As a result of the fair value assessment, the Company recorded a $151,504 loss as "Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net" in the Condensed Consolidated Statements of Operations for the three months ended December 31, 2017. The net gain recorded for the year ended December 31, 2017 was $73,815, to properly reflect the fair value of the embedded derivative of $394,280 as of December 31, 2017.

The fair value measurements rely primarily on Company-specific inputs and the Company's own assumptions. With the absence of observable inputs, the Company determined these recurring fair value measurements reside primarily within Level 3 of the fair value hierarchy. The derivative associated with the Notes approximates management's estimate of the fair value of the embedded derivative liability at December 31, 2017 based on using a Monte Carlo simulation following a Geometric Brownian Motion with the following assumptions: annual volatility of 62% present value discount rate of 12% and dividend yield of 0%.

NOTE 15. BAYBRIDGE CONVERTIBLE NOTE

On December 6, 2017, the Company entered into a securities exchange agreement (the "Exchange Agreement") with BayBridge Capital Fund LP ("BayBridge").

Pursuant to the terms of the Exchange Agreement, the Investor agreed to surrender and exchange 675 shares of outstanding Series J Preferred Stock ($755,417 of capital and accrued dividends). In exchange, the Company issued to the Investor an unsecured promissory note with an aggregate principal amount of $840,000 (the "Exchange Note"), with an original issue discount of $84,583. Please refer to Note 21 for further discussion on the Series J Preferred Stock.

The Exchange Note is unsecured, has no applicable registration rights, bears interest at a rate of 12% per annum, matures on December 6, 2018, and contains standard and customary events of default including but not limited to: (i) failure to make payments when due under the Exchange Note, and (ii) bankruptcy or insolvency of the Company. Principal and interest are payable upon maturity.

Payments of principal and accrued interest on the Exchange Note are payable in cash or, at the option of the Company, in shares of Common Stock at a variable conversion price equal to the lowest of (i) 85% of the average VWAP for the shares over the prior 5 trading days, (ii) the closing bid price for the shares on the prior trading day, or (iii) $0.003 per share. Payments in shares of Common Stock may not be issued pursuant to the Exchange Note if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 9.99% of the outstanding shares of Common Stock.

Pursuant to a number of factors outlined in ASC Topic 815, *Derivatives and Hedging*, the conversion option in the Exchange Note was deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. December 6, 2017, the derivative liability associated with the promissory note was $1,048,311. Since the value of the derivative was more than the liability and the original issue discount, the entire undiscounted liability of $755,417 was recorded as a debt discount to be amortized over the life of the liability. The remaining $292,894 was charged to interest expense.

The derivative liability associated with the Exchange Note is subject to revaluation on a quarterly basis to reflect the market value change of the embedded conversion option. At December 31, 2017, the Company conducted a fair value assessment of the embedded derivative associated with the Exchange Note. As a result of the fair value assessment, the Company recorded a $505,578 gain as "Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net" in the Condensed Consolidated Statements of Operations, for the year ended December 31, 2017, to properly reflect the fair value of the embedded derivative of $542,733 as of December 31, 2017.

The fair value measurements rely primarily on Company-specific inputs and the Company’s own assumptions. With the absence of observable inputs, the Company determined these recurring fair value measurements reside primarily within Level 3 of the fair value hierarchy. The derivative associated with the Exchange Note approximates management’s estimate of the fair value of the embedded derivative liability at December 31, 2017 based on using a Monte Carlo simulation following a Geometric Brownian Motion with the following assumptions: annual volatility of 61%, present value discount rate of 12% and dividend yield of 0%.

As of December 31, 2017, principal of $275,000 had been converted into 404,411,765 shares of common stock and no cash payments of principal or interest had been made. The principal and accrued interest balances as of December 31, 2017 were $565,000 and $4,825, respectively.

NOTE 16. SERIES A PREFERRED STOCK

In June 2013, the Company entered into a Securities Purchase Agreement with an investor to sell an aggregate of 750,000 shares of Series A Preferred Stock at a price of $8 per share, resulting in gross proceeds of $6,000,000. This purchase agreement included warrants to purchase up to 13,125 shares of common stock of the Company. The transfer of cash and securities took place incrementally, the first closing occurring on June 17, 2013 with the transfer of 125,000 shares of Series A Preferred Stock and a warrant to purchase 2,187 shares of common stock for $1,000,000. The final closings took place in August 2013, with the transfer of 625,000 shares of Series A Preferred Stock and a warrant to purchase 10,938 shares of common stock for $5,000,000.

Holders of Series A Preferred Stock are entitled to cumulative dividends at a rate of 8% per annum when and if declared by the Board of Directors in its sole discretion. The dividends may be paid in cash or in the form of common stock (valued at 10% below market price, but not to exceed the lowest closing price during the applicable measurement period), at the discretion of the Board of Directors. The dividend rate on the Series A Preferred Stock is indexed to the Company's stock price and subject to adjustment. In addition, the Series A Preferred Stock contains a make-whole provision whereby, conversion or redemption of the preferred stock within 4 years of issuance will require dividends for the full four year period to be paid by the Company in cash or common stock (valued at 10% below market price, but not to exceed the lowest closing price during the applicable measurement period). This make-whole provision expired in June 2017 and future conversions and redemptions will be paid out with accrued dividends per the holding period of the shares of Series A Preferred stock. Please see Note 23 for more information.

The Series A Preferred Stock may be converted into shares of common stock at the option of the Company if the closing price of the common stock exceeds $232, as adjusted, for 20 consecutive trading days, or by the holder at any time. The Company has the right to redeem the Series A Preferred Stock at a price of $8 per share, plus any accrued and unpaid dividends, plus the make-whole amount (if applicable). At December 31, 2017, the preferred shares were not eligible for conversion to common shares at the option of the Company. The holder of the preferred shares may convert to common shares at any time, at no cost, at a ratio of 1 preferred share into 1 common share (subject to standard ratable anti-dilution adjustments). Upon any conversion (whether at the option of the Company or the holder), the holder is entitled to receive any accrued but unpaid dividends.

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On October 6, 2016, the Series A Holder entered into an exchange agreement (the "Exchange Agreement") with Adar Bays. Pursuant to the exchange agreement, beginning December 5, 2016, Adar Bays has the option to exchange, from time to time, all or any portion of the October 2016 Convertible Notes (see Note 13) for outstanding shares of Series A Preferred Stock from the Series A Holder.

As of December 31, 2017, Adar Bays had elected to exchange all outstanding October 2016 Convertible Notes, in accordance with the exchange agreement, resulting in the exchange of 104,785 shares of Series A Preferred Stock. As of December 31, 2017, Adar Bays had also converted their 104,785 shares of Series A Preferred Stock, and the related make whole dividend, which resulted in the issuance of 173,946,250 shares of common stock.

Except as otherwise required by law (or with respect to approval of certain actions), the Series A Preferred Stock shall have no voting rights. Upon any liquidation, dissolution or winding up of the Company, after payment or provision for payment of debts and other liabilities of the Company, the holders of Series A Preferred Stock shall be entitled to receive, pari passu with any distribution to the holders of common stock of the Company, an amount equal to $8 per share of Series A Preferred Stock plus any accrued and unpaid dividends.

As of December 31, 2017, there were 60,756 shares of Series A Preferred Stock outstanding and accrued and unpaid dividends of $279,815.

NOTE 17. SERIES E PREFERRED STOCK AND THE COMMITTED EQUITY LINE

Series E Preferred Stock

On November 4, 2015, the Company entered into a securities purchase agreement with a private investor to issue 2,800 shares of Series E Preferred Stock in exchange for $2,800,000.

Shares of the Series E Preferred Stock (including the amount of any accrued and unpaid dividends thereon) are convertible, at the option of the holder, into common stock at a variable conversion price equal to 80% of the average of the two lowest VWAPs of the Company's common stock for the ten consecutive trading day period prior to the conversion date. If certain defined default events occur, the conversion price would thereafter be reduced (and only reduced), to equal 70% of the average of the two lowest VWAPs of the Company's common stock for the twenty consecutive trading day period prior to the conversion date.

The private investor had available to them a new conversion price beginning on June 9, 2016 as a result of the Series H Preferred Stock transaction further described in Note 12. Shares of the Series E Preferred Stock are now convertible, at the option of the private investor, into common stock at a variable conversion price equal to 70% of (i) the lowest VWAP of our common stock for the ten consecutive trading day period prior to the conversion date or (ii) the lowest closing bid price of our common stock for the ten consecutive trading day period prior to the conversion date. The following table summarizes the conversion activity of the Series E Preferred Stock:

Conversion Period	Preferred Series E Shares Converted	Value of Series E Preferred Shares (inclusive of accrued dividends)	Common Shares Issued
Q4 2015	478	$ 481,500	250,000
Q1 2016	1,220	1,239,436	1,132,000
Q2 2016	365	381,414	7,979,568
Q3 2016	523	548,896	21,973,747
Q4 2016	94	101,018	13,089,675
Q1 2017	15	16,248	8,289,962
Q2 2017	35	38,886	134,927,207
Q3 2017	70	76,814	129,314,677
	2,800	$ 2,884,212	316,956,836

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Holders of the Series E Preferred Stock will be entitled to dividends in the amount of 7% per annum. During the year ended December 31, 2017, the holder converted dividends in the amount of $11,948 on the Series E Preferred Stock, resulting in the issuance of 25,160,171 shares of common stock. On September 30, 2017, the Company paid $2,013 in cash for the remaining accrued dividends.

The Company has issued 18,000 shares of common stock to the private investor as a commitment fee relating to the Series E Preferred Stock. Costs associated with the Series E Preferred Stock, such as legal fees and commitment shares are capitalized and reported as deferred financing costs on the Condensed Consolidated Balance Sheets. The total gross debt issuance cost incurred by the Company related to the Series E Preferred Stock was $104,000. These debt issuance costs will be recognized as additional interest expense over the life of the Series E Preferred Stock.

As of December 31, 2017, all outstanding shares of Series E Preferred Stock, along with all accrued dividends, had either been converted or redeemed.

The Company classified the Series E Preferred Stock as a liability pursuant to ASC 480 on the closing date due to the structure of the financing agreement, whereby the Company has an unconditional obligation that the Company may settle by issuing a variable number of common shares with a monetary value that is fixed and known at inception.

Pursuant to a number of factors outlined in ASC Topic 815, *Derivatives and Hedging*, the conversion option in the Series E Preferred Stock was deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. At December 31, 2016 the fair value of the derivative liability was $140,748.

At September 30, 2017, the Company recorded the reduction of the remaining embedded derivative associated with the Series E Preferred Stock of $121,390 as a gain in the "Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net" in the Condensed Consolidated Statements of Operations. The net gain recorded for the year ended December 31, 2017 was $140,748, to properly reflect the elimination of the embedded derivative as of December 31, 2017.

The Committed Equity Line

On November 10, 2015, the Company and the private investor entered into a committed equity line purchase agreement (the "CEL"). Under the terms and subject to the conditions of the CEL purchase agreement, at its option the Company has the right to sell to the private investor, and the private investor is obligated to purchase from the Company, up to $32.2 million of the Company’s common stock, subject to certain limitations, from time to time, over the 36-month period commencing on December 18, 2015, the date that the registration statement was declared effective by the SEC.

From time to time, the Company may direct the private investor, at its sole discretion and subject to certain conditions, to purchase an amount of shares of common stock up to the lesser of (i) $1,000,000 or (ii) 300% of the average daily trading volume of the Company’s common stock over the preceding ten trading day period. The per share purchase price for shares of common stock to be sold by the Company under the CEL purchase agreement shall be equal to 80% of the average of the two lowest VWAPs of the common stock for the ten consecutive trading day period prior to the purchase date. In total, the Company directed the private investor to purchase $3,056,147 of common stock which resulted in the issuance of 1,368,000 shares of common stock.

The Company may not direct the private investor to purchase shares of common stock more frequently than once each ten business days. The Company’s sales of shares of common stock to the private investor under the CEL purchase agreement are limited to no more than the number of shares that would result in the beneficial ownership by the private investor and its affiliates, at any single point in time, of more than 9.99% of the Company’s then outstanding shares of common stock.

As consideration for entering into the CEL purchase agreement, the Company agreed to issue to the private investor 132,000 shares of common stock (the "Commitment Shares"). The Commitment Shares were issued to the private investor commencing upon the date that the registration statement was declared effective by the SEC.

While not officially terminated, the CEL is no longer active and the Company does not consider this a viable source of capital.

NOTE 18. SERIES F PREFERRED STOCK

On January 19, 2016, the Company entered into a securities purchase agreement with a private investor for the sale of $7,000,000 of the Company's newly designated Series F Preferred Stock.

On January 20, 2016, the Company sold and issued 7,000 shares of Series F Preferred Stock to the private investor. The aggregate purchase price of the Series F Preferred shares was $7,000,000. On January 20, 2016, the private investor paid $500,000 to the Company. The remaining $6,500,000 was paid by the private investor to the Company in 14 weekly increments of $500,000 or $250,000 beginning January 25, 2016 and ending April 28, 2016.

Shares of the Series F Preferred Stock (including the amount of any accrued and unpaid dividends thereon) are convertible, at the option of the holder, into common stock at a fixed conversion price equal to $5 per share. If certain defined default events occur, the conversion price would thereafter be reduced (and only reduced), to equal 70% of the average of the two lowest VWAPs of our common stock for the twenty consecutive trading day period prior to the conversion date.

If requested by the private investor, the Company will make weekly redemptions of shares of Series F Preferred Stock (including any accrued and unpaid dividends thereon). If the redemption price is paid by the Company in cash, the number of shares to be redeemed in each weekly increment is 250 shares of Series F Preferred Stock, and the redemption price is a price per share equal to $1,250 plus any accrued but unpaid dividends thereon.

The Company has the option to make such redemption payments in shares of common stock provided certain specified equity conditions are satisfied at the time of payment. The number of shares of common stock to be issued would be calculated using a per share price equal to 80% of the one lowest VWAP of our common stock for the ten consecutive trading day period prior to the payment date. For redemption payments made in shares of common stock, the Company will redeem either (i) 250 shares of Series F Preferred Stock or (ii) such greater number of shares of Series F Preferred Stock (and also including any accrued and unpaid dividends) that would result upon redemption in the issuance of a number of shares of common stock equal to 12% of the aggregate composite trading volume for the Company’s common stock during the preceding calendar week.

The private investor had available to them a new conversion price beginning on June 9, 2016 as a result of the Series H Preferred Stock transaction further described in Note 12. Shares of the Series F Preferred Stock are now convertible, at the option of the private investor, into common stock at a variable conversion price equal to 70% of (i) the lowest VWAP of our common stock for the ten consecutive trading day period prior to the conversion date or (ii) the lowest closing bid price of our common stock for the ten consecutive trading day period prior to the conversion date.

Amendment of Outstanding Series F Preferred Stock Conversion Price

On October 5, 2016, the Company filed a Certificate of Amendment to the Certificate of Designations of Preferences, Rights and Limitations of Series F Preferred Stock with the Secretary of State of the State of Delaware. The Certificate of Amendment amends the conversion price at which the Series F Preferred Stock can be converted into shares of common stock. The Company had approximately $336,000 of Series F Preferred Stock remaining outstanding as of October 5, 2016.

As amended, the conversion price will now be equal to the lowest of (i) 50% of the lowest weighted average price (“VWAP”) of our common stock for the ten consecutive trading day period prior to the conversion date or (ii) 50% of the lowest closing bid price of our common stock for the ten consecutive trading day period prior to the conversion date. If certain “Triggering Events” specified in the terms of the Series F Preferred Stock occur, then the conversion price of the Series F Preferred Stock shall be thereafter reduced, and only reduced, to equal 50% of the average of the lowest traded price of the common stock for the twenty consecutive trading day period prior to the conversion date.

The following table summarizes the conversion activity of the Series F Preferred Stock:

Conversion Period	Principal Converted	Dividends Converted	Common Shares Issued
Q1 2016	$ 2,168,402	$ 19,896	2,183,991
Q2 2016	$ 3,234,000	$ 66,931	6,649,741
Q3 2016	$ 1,261,648	$ 54,096	81,917,367

Q4 2016	$	175,949	$	9,168	27,276,006
Q3 2017	$	20,000	$	—	18,181,818
Q4 2017	$	107,000	$	467	172,552,354
	$	6,966,999	$	150,558	308,761,277

Holders of the Series F Preferred Stock are entitled to dividends in the amount of 7% per annum. As of December 31, 2017, all shares and accrued dividends had been converted and no balance remained.

The Company classified the Series F Preferred Stock as a liability pursuant to ASC 480 on the closing date due to the structure of the financing agreement, whereby the Company has an unconditional obligation that the Company may settle by issuing a variable number of common shares with a monetary value that is fixed and known at inception.

Pursuant to a number of factors outlined in ASC Topic 815, *Derivatives and Hedging*, the conversion option in the Series F Preferred Stock was deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. At closing, a derivative liability and a corresponding debt discount in the amount of $1,666,000 were recorded. The debt discount will be charged to interest expense ratably over the life of the Series F Preferred Stock. The derivative balance was $255,324, as of December 31, 2016.

At December 31, 2017, the Company recorded the reduction of the remaining embedded derivative associated with the Series F Preferred Stock of $42,347 as a gain in the "Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net" in the Condensed Consolidated Statements of Operations. The net gain recorded for the year ended December 31, 2017 was $255,324, to properly reflect the elimination of the embedded derivative as of December 31, 2017.

NOTE 19. SERIES G PREFERRED STOCK

On April 29, 2016, the Company entered into a securities purchase agreement with private investors to issue 2,000 shares of Series G Preferred Stock for $2,000,000. The Company issued 2,000 shares of Series G Preferred Stock to the private investors, in various tranches between April and June 2016, resulting in gross proceeds to the Company of $2,000,000.

Holders of the Series G Preferred Stock are entitled to dividends in the amount of 10% per annum. One year after issuance, the Company is required to redeem for cash all or any portion of the outstanding shares of the Series G Preferred Stock at a price per share equal to $1,000 plus any accrued but unpaid dividends thereon.

Assignment of Series G Preferred Stock

Beginning September 19, 2016, the two private investors (the “Series G Sellers”) entered into assignment agreements with accredited investors (the “Series G Purchasers”). Under the terms of the assignment agreements, the Series G Sellers may sell all 2,000 outstanding shares of Series G Preferred Stock to the Series G Purchasers for a purchase price of $1,000 per share of Series G Preferred Stock (plus the amount of any accrued and unpaid dividends thereon). During 2016 and 2017, the Series G Sellers had sold 1,795 shares of Series G Preferred Stock, representing a value of $1,795,000, to the Series G Purchasers.

On September 21, 2016, the Company filed a Certificate of Amendment to the Certificate of Designations of Preferences, Rights and Limitations of Series G Preferred Stock with the Secretary of State of the State of Delaware. The Certificate of Amendment amends the conversion price at which the Series G Preferred Stock can be converted into shares of common stock. Shares of the Series G Preferred Stock (including the amount of any accrued and unpaid dividends thereon) were previously convertible at the option of the private investors into common stock at a fixed conversion price of $1 per share. As amended, the conversion price is equal to the lowest of (i) $0.045, (ii) 70% of the lowest volume weighted average price of the Company’s common stock for the ten consecutive trading day period prior to the conversion date or (iii) 70% of the lowest closing bid price of the Company’s common stock for the ten consecutive trading day period prior to the conversion date. The following table summarizes the conversion activity of the Series G Preferred Stock:

Conversion Period	Principal Converted	Dividends Converted	Common Shares Issued

Q4 2016	$ 892,000	$ 37,895	245,726,283
Q1 2017	$ 372,000	$ 25,970	327,718,386
Q2 2017	$ 526,000	$ 49,096	1,337,776,821
	$ 1,790,000	$ 112,961	1,911,221,490

On June 29, and June 30, 2017, the Company redeemed the remaining 210 outstanding shares, and the related accrued dividends for cash payments in the amount of $232,440. As of December 31, 2017, all Series G Preferred Stock Shares, and the related accrued dividends, had either been converted or redeemed.

The Company classified the Series F Preferred Stock as a liability pursuant to ASC 480 on the closing date due to the structure of the financing agreement, whereby the Company has an unconditional obligation that the Company may settle by issuing a variable number of common shares with a monetary value that is fixed and known at inception.

Pursuant to a number of factors outlined in ASC Topic 815, *Derivatives and Hedging*, the conversion option in the Series G Preferred Stock was deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. At December 31, 2016, the fair value of the derivative liability was $361,831.

The net gain recorded for the year ended December 31, 2017 was $361,831, to properly reflect the elimination of the embedded derivative as of December 31, 2017.

Conversion Inducement and Disposal Price Guarantee

On January 17, 2017, one of the Series G Preferred Stock holders ("Holder A") requested a conversion of 100 shares of Series G Preferred Stock, $100,000 face value, including accrued dividends of $6,147, into common stock of the Company at a conversion price of $0.00112 which would have resulted in the issuance of 95,014,884 shares of common stock. At the date of the request the Company did not have enough authorized shares to execute the conversion request and therefore entered into an agreement with Holder A to honor the conversion price of $0.00112 and issue the 95,014,884 shares of common stock upon the increase of the authorized common shares of the Company. The actual conversion occurred on March 17, 2017 which would have been a conversion price of $0.00168. In conjunction with the conversion price agreement the Company agreed to provide a minimum disposal price guarantee to the Holder A of $0.003 on the tranche of 95,014,884 shares. If Holder A fails to dispose of these shares at $0.003 or above the Company will issue additional shares of common stock to make up the difference between the minimum disposal price of $0.003 and the price that Holder A disposed of the shares.

During the year ended December 31, 2017, in accordance with ASC 470-20-40-16, the Company recorded expense of $79,179 related to the conversion inducement and expense of $134,566 related to the disposal price guarantee.

On June 29, 2017, the Company and Holder A agreed to settle the disposal price guarantee liability in cash instead of shares of the Company's common stock. The liability was paid in three equal monthly installments commencing on June 30, 2017. As of December 31, 2017, the Company had repaid the liability in full.

NOTE 20. SERIES I PREFERRED STOCK AND SERIES I CONVERTIBLE NOTES

Series I Preferred Stock

On July 26, 2016, the Company entered into a securities purchase agreement with a private investor for the placement of approximately 1,000 of the Company's Series I Preferred Stock. At Closing, the Company issued a total of 536 shares of Series I Preferred Stock to the private investor in exchange for the cancellation of an outstanding $536,000 promissory note (including accrued interest) of the Company held by the private investor.

On September 13, 2016, the private investor (the "Series I Seller") entered into an assignment agreement with an accredited investor (the "Series I Purchaser"). Under the terms of the assignment agreements, the Series I Seller may sell all 326 outstanding shares of Series I Preferred Stock to the Series I Purchaser for a purchase price of $1,000 per share of Series I Preferred Stock (plus the amount of any accrued and unpaid dividends thereon). In September and October 2016, the Series I Seller sold all 326 shares of Series I Preferred Stock, representing a value of $332,633, to the Series I Purchaser.

On September 13, 2016, the Company agreed to exchange outstanding Series I Preferred Stock for convertible notes ("Exchange Convertible Notes") and as of December 31, 2016 the Series I Purchaser had exchanged all 326 shares of Series I Preferred Stock and no shares were outstanding. Refer to the section below for details of the exchange.

Series I Exchange Convertible Notes

On September 13, 2016, the Company and the investor entered into an Exchange Agreement (the "Exchange Agreement"). Under the terms of the Exchange Agreement, the investor has the right, from time to time, to surrender to the Company for cancellation and exchange any shares of Series I Preferred Stock it acquires pursuant to the Assignment Agreement. Any surrendered shares of Series I Preferred Stock would be exchanged for newly issued Exchange Convertible Notes. The principal amount of Exchange Convertible Notes to be issued in exchange shall be equal to (i) $1,000 for each share of Series I Preferred Stock surrendered for exchange plus (ii) the amount of any dividends accrued and unpaid on such Series I Preferred Stock surrendered for exchange. During the year ended December 31, 2016, the investor exercised their option to exchange 326 Series I Preferred Shares, representing a value of $326,000, and accrued dividends of $6,633, resulting in the creation of $332,633 of Exchange Convertible Notes.

Unless earlier converted or prepaid, all of the Exchange Convertible Notes will mature one year after issuance. The Exchange Convertible Notes bear interest at a rate of 10% per annum, subject to increase to 24% per annum upon the occurrence and continuance of an event of default (as described below). Principal and interest on the Exchange Convertible Notes is payable on the maturity date or upon any earlier conversion. Principal and interest are payable in cash or, if specified equity conditions are met, shares of common stock.

All principal and accrued interest on the Exchange Convertible Notes are convertible at any time, in whole or in part, at the option of the investor, into shares of common stock at a variable conversion price equal to the lowest of (i) the lowest closing bid price of our common stock for the ten consecutive trading day period prior to the conversion date or (ii) 70% of the lowest VWAP of our common stock for the ten consecutive trading day period prior to the conversion date. The following table summarizes the conversion activity of the Exchange Convertible Notes, which were converted in full as of December 31, 2017:

Conversion Period	Principal Converted	Interest Converted	Common Shares Issued
Q3 2016	$ 15,000	$ —	1,470,588
Q4 2016	$ 91,563	$ —	13,346,274
Q1 2017	$ 70,000	$ —	50,503,662
Q2 2017	$ 37,535	$ —	86,987,428
Q3 2017	$ 118,535	$ 10,268	306,675,548
	$ 332,633	$ 10,268	458,983,500

On July 31, 2017, the remaining interest balance of $5,255 was paid in cash.

Pursuant to a number of factors outlined in ASC Topic 815, *Derivatives and Hedging*, the conversion option in the Exchange Convertible Notes was deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. At December 31, 2016 the fair value of the derivative liability was $196,617.

The net gain recorded for the year ended December 31, 2017 was $196,617, to properly reflect the elimination of the embedded derivative as of July 31, 2017.

NOTE 21. SERIES J PREFERRED STOCK AND SERIES J-1 PREFERRED STOCK

Series J Preferred Stock

On September 19, 2016, the Company entered into a securities purchase agreement with one accredited investor for the private placement of $1,350,000 of the Company's newly designated Series J Convertible Preferred Stock ("Series J Preferred Stock"). During September and October 2016, the Company issued 1,350 shares of Series J Preferred Stock in exchange for proceeds of $1,350,000.

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On March 29, 2017, the accredited investor (the "Series J Seller") entered into an assignment agreement with a private investor (the "Series J Purchaser"). Under the terms of the assignment agreement, the Series J Seller may sell 250 outstanding shares of Series J Preferred Stock to the Series J Purchaser for a purchase price of $1,000 per share of Series J Preferred Stock, plus the amount of any accrued and unpaid dividends. Again on April 4, 2017, the Series J Seller entered into an assignment agreement with the same Series J Purchaser to sell an additional 600 shares of the Series J Preferred Stock at a purchase price of $1,000 per share, plus the amount of any accrued and unpaid dividends. During the year ended December 31, 2017, the Series J Seller sold an aggregate of 850 shares to the Series J Seller for an aggregate proceeds of $850,000.

Holders of the Series J Preferred Stock are entitled to dividends in the amount of 10% per annum. Shares of the Series J Preferred Stock (including the amount of any accrued and unpaid dividends thereon) are convertible at the option of the holder into common stock at a fixed conversion price of $0.015 per share. During 2017, no shares of the Series J Preferred Stock had been converted at the fixed conversion price; 275 shares of Series J Preferred Stock were converted under conversion inducement offers (see Conversion Inducement Offers discussion below). One year after issuance, the Company is required to redeem for cash all or any portion of the outstanding shares of the Series J Preferred Stock at a price per share equal to $1,000 plus any accrued but unpaid dividends thereon.

There are no registration rights applicable to the Series J Preferred Stock. Accordingly, any shares of Common Stock issued upon conversion of the Series J Preferred Stock are restricted and can only be sold in compliance with Rule 144 or in accordance with another exemption from registration.

Conversion Inducement Offers

On March 24, 2017, the Company offered to lower the conversion price, applicable to 100 shares of Series J Preferred Stock. The reduced conversion rate was $0.00147 calculated by giving a 30% discount on the day's closing bid price resulting in the issuance of 71,636,432 shares of common stock. In accordance with ASC 470-20, the Company recorded a conversion expense of $142,155 related to the inducement offer.

On March 29, 2017, the Company offered to lower the conversion price, applicable to 125 shares of Series J Preferred Stock. The reduced conversion rate was $0.00105 calculated by giving a 30% discount to the lowest closing bid price in a ten day look back period resulting in the issuance of 125,429,895 shares of common stock. In accordance with ASC 470-20, the Company recorded a conversion expense of $186,640 related to the inducement offer.

On May 8, 2017, the Company offered to lower the conversion price, applicable to 50 shares of Series J Preferred Stock. The reduced conversion rate was $0.00028 calculated by giving a 30% discount to the lowest closing bid price in a ten day look back period resulting in the issuance of 189,484,143. In accordance with ASC 470-20, the Company recorded a conversion expense of $92,974 related to the inducement offer.

As a result of these inducement offers, the Company re-evaluated the embedded conversion feature of the Series J Preferred Stock. Upon original issuance, the embedded conversion feature was determined to not require bifurcation, in accordance with ASC 815-10. Due to the inducement offers described above, the Company no longer believes the embedded conversion feature should remain unbifurcated.

Pursuant to a number of factors outlined in ASC Topic 815, *Derivatives and Hedging*, the conversion option in the Series J Preferred Stock, post inducement offers, was deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. At March 24, 2017, the fair value of the derivative liability was $705,024 .

The net gain recorded for the year ended December 31, 2017 was $705,024, to properly reflect the elimination of the embedded derivative as of December 31, 2017.

Exchange Agreements

On November 30, 2017, the Company entered into an exchange agreement with one of the Series J holders. Under the terms of the agreement, the Series J Holder agreed to surrender their 400 outstanding shares of Series J Preferred Stock, with a value of $400,000, and $45,222 in accrued dividends, in return for a secured promissory note. Please see Note 10 for further discussion on the secured promissory note.

On December 6, 2017, the the Company entered into an exchange agreement with one of the Series J holders. Under the terms of the agreement, the Series J Holder agreed to surrender their 675 outstanding shares of Series J Preferred Stock, with a value of $675,000, and $80,417 in accrued dividends, in return for a promissory note. Please see Note 15 for further discussion on the promissory note.

As of December 31, 2017, there were no outstanding shares of Series J Preferred Stock and no accrued and unpaid interest.

Series J-1 Preferred Stock

On October 14, 2016, the Company entered into a securities purchase agreement with a private investor to issue 1,000 shares of Series J-1 Preferred Stock for $1,000,000. The Company issued a total of 700 shares of Series J-1 Preferred Stock to the private investor in exchange for gross proceeds of $700,000.

Shares of the Series J-1 Preferred Stock (including the amount of any accrued and unpaid dividends thereon) may be converted, at the option of the holder, into common stock at a fixed conversion price of $0.0125 per share. Holders of the Series J-1 Preferred Stock are entitled to dividends in the amount of 10% per annum. One year after issuance, the Company is required to redeem for cash, all or any portion of the outstanding shares of Series J-1 Preferred Stock at a price per share equal to $1,000 plus any accrued but unpaid dividends thereon.

On August 10, 2017, the Company and the investor entered into a redemption agreement whereby the Company agreed to redeem $700,000 face value of Series J-1 Preferred Stock plus accrued dividends of $55,305 by issuing 500 million shares of common stock and a warrant to purchase 250 million shares of common stock.

The warrant is exerciseable, at a fixed exercise price of $0.003, on the issuance date through the first anniversary of the issuance date. The Warrant may not be exercised if, after giving effect to the exercise, the holder of the Warrant, together with its affiliates, would beneficially own in excess of 9.99% of the outstanding shares of common stock.

NOTE 22. SERIES K PREFERRED STOCK

On February 8, 2017, the Company, entered into a securities purchase agreement ("Series K SPA") with a private investor ("Investor"), for the private placement of up to $20 million of the Company's newly designated Series K Convertible Preferred Stock ("Series K Preferred Stock").

Per the terms of the Series K SPA, the Company was scheduled to sell 1,000 shares of Series K Preferred Stock to Investor in exchange for $1,000,000 of gross proceeds on or before each of (i) February 24, 2017, (ii) March 27, 2017, (iii) April 27, 2017, (iv) May 27, 2017 and (v) June 27, 2017. The Company was also scheduled to sell 15,000 shares of Series K Preferred Stock to the Investor in exchange for $15,000,000 of gross proceeds on or before July 27, 2017. As of December 31, 2017, the Company had sold 9,010 shares of Series K Preferred Stock in exchange for $9,010,000 in cash proceeds from the private investor. The Company does not expect to receive any more funding from this investor as of December 31, 2017. The following summarizes the closings and proceeds received as of December 31, 2017:

Closing Period	Preferred Series K Shares Purchased	Closing Amount
Q1 2017	150	$ 150,000
Q2 2017	4,100	$ 4,100,000
Q3 2017	4,760	$ 4,760,000
	9,010	$ 9,010,000

The Series K Preferred Stock ranks senior to the Company's common stock in respect to dividends and rights upon liquidation. The Series K Preferred Stock will not have voting rights and the holders of the Series K Preferred Stock will not be entitled to any fixed rate of dividends.

The shares of the Series K Preferred Stock will be convertible at the option of the holder into common stock at a fixed conversion price equal to $0.004. At no time may the Series K Preferred Stock be converted if the number of shares of common stock to be received by Investor pursuant to such conversion, when aggregated with all other shares of common stock then beneficially (or deemed beneficially) owned by Investor, would result in Investor beneficially owning more than 19.99% of all common stock then outstanding. The following table summarizes the conversion activity of Series K Preferred Stock:

Conversion Period	Preferred Series K Shares Converted		Value of Series K Preferred Shares	Common Shares Issued
Q2 2017	3,200	$	3,200,000	800,000,000
Q3 2017	3,000	$	3,000,000	750,000,000
	6,200	$	6,200,000	1,550,000,000

As of December 31, 2017, the investor owned approximately 16% of the Company's outstanding common stock and there are 2,810 shares of Series K Preferred Stock Outstanding, representing a value of $2,810,000.

The Company is required to redeem for cash any outstanding shares of the Series K Preferred Stock at a price per share equal to $1,000 plus any accrued but unpaid dividends (if any) thereon on the fifth anniversary of the date of the original issue of such shares.

NOTE 23. MAKE-WHOLE DIVIDEND LIABILITY

In June 2013, the Company entered into a Series A Preferred Stock Purchase Agreement. Holders of Series A Preferred Stock are entitled to cumulative dividends at a rate of 8% per annum, with the dividend rate being indexed to the Company's stock price and subject to adjustment. Conversion or redemption of the Series A Preferred Stock within four years of issuance requires the Company pay a make-whole dividend to the holders, whereby dividends for the full four year period are to be paid in cash or common stock (valued at 10% below market price).

The Company concluded the make-whole dividends should be characterized as embedded derivatives under ASC 815. The make-whole dividends were expensed at the time of issuance and recorded as "Make-whole dividend liability" in the Condensed Consolidated Balance Sheets.

The fair value of these dividend liabilities, which are indexed to the Company's common stock, must be evaluated at each period end. The fair value measurements rely primarily on Company-specific inputs and the Company's own assumptions. With the absence of observable inputs, the Company determined these recurring fair value measurements reside primarily within Level 3 of the fair value hierarchy. The fair value determination required forecasting stock price volatility, expected average annual return and conversion date.

Between December 2016 and March 2017, a Preferred Series A holder converted 104,785 shares of Series A Preferred Stock, and the related make whole dividend of $419,140, which resulted in the issuance of 173,946,250 shares of common stock.

On June 17, 2017, the make-whole dividend reached maturity. As such, the Company eliminated the Make-Whole derivative liability, moving the remaining balance of $274,583 to accrued interest and dividends, and began accruing additional dividends on the Series A Preferred Stock as they occur. Please refer to Note 16 for further information on the Series A Preferred Stock and the associated accrued and unpaid dividends.

NOTE 24. STOCKHOLDERS' EQUITY (DEFICIT)

Common Stock

At December 31, 2017, the Company had 20 billion shares of common stock, $0.0001 par value, authorized for issuance. Each share of common stock has the right to one vote. As of December 31, 2017, the Company had 9,606,597,777 shares of common stock outstanding. The Company has not declared or paid any dividends related to the common stock through December 31, 2017.

Preferred Stock

At December 31, 2017, the Company had 25,000,000 shares of preferred stock, $0.0001 par value, authorized for issuance. Preferred stock may be issued in classes or series. Designations, powers, preferences, rights, qualifications, limitations and restrictions are determined by the Company's Board of Directors. The following table summarizes the designations, shares authorized, and shares outstanding for the Company's Preferred Stock:

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Preferred Stock Series Designation	Shares Authorized	Shares Outstanding
Series A	750,000	60,756
Series B-1	2,000	—
Series B-2	1,000	—
Series C	1,000	—
Series D	3,000	—
Series D-1	2,500	—
Series E	2,800	—
Series F	7,000	—
Series G	2,000	—
Series H	2,500	—
Series I	1,000	—
Series J	1,350	—
Series J-1	1,000	—
Series K	20,000	2,810

Series A Preferred Stock

Refer to Note 16 descriptions of Series A Preferred Stock.

Series B-1, B-2, C, D, and D-1 Preferred Stock

There were no transactions involving the Series B-1, B-2, C, D, or D-1 during the years ended December 31, 2016 and December 31, 2017.

Series E Preferred Stock

Refer to Note 17 descriptions of Series E Preferred Stock.

Series F Preferred Stock

Refer to Note 18 descriptions of Series F Preferred Stock.

Series G Preferred Stock

Refer to Note 19 descriptions of Series G Preferred Stock.

Series H Preferred Stock

Refer to Note 12 descriptions of Series H Preferred Stock.

Series I Preferred Stock

Refer to Note 20 descriptions of Series I Preferred Stock.

Series J Preferred Stock

Refer to Note 21 descriptions of Series J Preferred Stock.

Series J-1 Preferred Stock

Refer to Note 21 descriptions of Series J-1 Preferred Stock.

Series K Preferred Stock

Refer to Note 22 descriptions of Series K Preferred Stock.

Warrants

On July 24, 2017, the Company issued a warrant for 250 million shares of common stock, in connection with a settlement agreement with a consultant. The warrant is exerciseable at a fixed exercise price of $0.004, on the issuance date through the first anniversary of the issuance date. The warrant may not be exercised if, after giving effect to the exercise, the holder, together with its affiliates, would beneficially own in excess of 9.99% of the Company's outstanding shares of common stock.

The Company conducted a fair value assessment of the warrant upon issuance using a Black Scholes model with the following inputs: stock price on the date of issuance of $0.0007, stock volatility of 234%, and a risk free rate of 1.23%. Using these parameters, the Company calculated a fair value of $88,937 and recorded a corresponding expense on the Company's consolidated and condensed statement of operations.

On August 10, 2017, the Company issued a warrant for 250 million shares of common stock in connection with a preferred stock redemption agreement. The warrant is exerciseable, at a fixed exercise price of $0.003, on the issuance date through the first anniversary of the issuance date. The Warrant may not be exercised if, after giving effect to the exercise, the holder, together with its affiliates, would beneficially own in excess of 9.99% of the Company's outstanding shares of common stock.

The Company conducted a fair value assessment of the warrant upon issuance using a Black Scholes model with the following inputs: stock price on the date of issuance of $0.0015, stock volatility of 230%, and a risk free rate of 1.22%. Using these parameters, the Company calculated a fair value of $246,803 and recorded a corresponding expense on the Company's consolidated and condensed statement of operations.

On December 15, 2017, the Company issued a warrant for 200 million shares of common stock in connection with a consulting agreement. The warrant is exerciseable, at a fixed exercise price of $0.0018, on the issuance date through the June 30, 2018. The Warrant may not be exercised if, after giving effect to the exercise, the holder, together with its affiliates, would beneficially own in excess of 9.99% of the Company's outstanding shares of common stock.

The Company conducted a fair value assessment of the warrant upon issuance using a Black Scholes model with the following inputs: stock price on the date of issuance of $0.0008, stock volatility of 99%, and a risk free rate of 1.48%. Using these parameters, the Company calculated a fair value of $10,035 and recorded a corresponding expense on the Company's consolidated and condensed statement of operations.

The following table summarizes warrant activity:

	Warrant Shares		Warrant Weighted Average Exercise Price
Outstanding at December 31, 2016	—	$	—
Granted	700,000,000	$	0.003
Exercised	—	$	—
Canceled	—	$	—
Outstanding at December 31, 2017	700,000,000	$	0.003
Exercisable at December 31, 2017	700,000,000	$	0.003

NOTE 25. EQUITY PLANS AND SHARE-BASED COMPENSATION

Stock Option Plan: The Company’s 2005 Stock Option Plan, as amended (the “Stock Option Plan”) provides for the grant of incentive or non-statutory stock options to the Company’s employees, directors and consultants. The stock Option Plan initially reserved 170,000 shares (as adjusted for the Reverse Stock Split) of the Company's common stock for option awards to eligible employees. Upon recommendation of the Board of Directors, the stockholders approved an increase in the total shares of common stock reserved for issuance under the Stock Option Plan to 270,000 during 2015.

Restricted Stock Plan: The Company's 2008 Restricted Stock Plan, as amended (the "Restricted Stock Plan") was adopted by the Board of Directors and was approved by the stockholders on July 1, 2008. The Restricted Stock Plan initially reserved up to 75,000 shares (as adjusted for the Reverse Stock Split) of the Company's common stock for restricted stock awards and restricted stock units to eligible employees, directors and consultants of the Company. Upon recommendation of the Board of Directors, the stockholders approved an increase in the total shares of common stock reserved for issuance under the Restricted Stock Plan to 125,000 and 750,000 shares during 2015 and 2016, respectively. There were no changes to the plan in 2017.

The Stock Option Plan and the Restricted Stock Plan are administered by the Compensation Committee of the Board of Directors, which determines the terms of the option and share awards, including the exercise price, expiration date, vesting schedule and number of shares. The term of any incentive stock option granted under the Stock Option Plan may not exceed ten years, or five years for options granted to an optionee owning more than 10% of the Company's voting stock. The exercise price of an incentive stock option granted under the Option Plan must be equal to or greater than the fair market value of the shares of the Company's common stock on the date the option is granted. An incentive stock option granted to an optionee owning more than 10% of the Company's voting stock must have an exercise price equal to or greater than 110% of the fair market value of the Company's common stock on the date the option is granted. The exercise price of a non-statutory option granted under the Option Plan must be equal to or greater than 85% of the fair market value of the shares of the Company's common stock on the date the option is granted.

Share-Based Compensation: The Company measures share-based compensation cost at the grant date based on the fair value of the award and recognizes this cost as an expense over the grant recipients' requisite service periods for all awards made to employees, officers, directors and consultants.

The share-based compensation expense recognized in the Consolidated Statements of Operations was as follows:

	For the years ended December 31,	
	2017	**2016**
Share-based compensation cost included in:		
Research and development	$ 18,231	$ 181,985
Selling, general and administrative	105,037	706,363
Total share-based compensation cost	$ 123,268	$ 888,348

The following table presents share-based compensation expense by type:

	For the years ended December 31,	
	2017	**2016**
Type of Award:		
Stock Options	$ 96,939	$ 377,653
Restricted Stock Units and Awards	26,329	510,695
Total share-based compensation cost	$ 123,268	$ 888,348

Stock Options: The Company recognized share-based compensation expense for stock options of $97,000 to officers, directors and employees for the year ended December 31, 2017 related to stock option awards, reduced for estimated forfeitures. There were no option grants during the year ended December 31, 2017, and the weighted average estimated fair value of employee stock options granted for the years ended December 31, 2016 was $1.35 per share. Fair value was calculated using the Black-Scholes Option Pricing Model with the following assumptions:

	For the years ended December 31,	
	2017	**2016**

Expected volatility	—%	114.6%
Risk free interest rate	—%	1.5%
Expected dividends	—	—
Expected life (in years)	0	5.8 years

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Expected volatility is based on the historical volatility of the Company's stock. The risk-free rate of return is based on the yield of U.S. Treasury bonds with a maturity equal to the expected term of the award. Historical data is used to estimate forfeitures within the Company's valuation model. The Company's expected life of stock option awards is derived from historical experience and represents the period of time that awards are expected to be outstanding.

As of December 31, 2017, total compensation cost related to non-vested stock options not yet recognized was $36,000 which is expected to be recognized over a weighted average period of approximately 1.2 years. As of December 31, 2017, 67,000 shares were vested or expected to vest in the future at a weighted average exercise price of $30.71. As of December 31, 2017, 189,475 shares remained available for future grants under the Option Plan.

The following table summarizes stock option activity within the Stock Option Plan:

	Stock Option Shares	Stock Options Weighted Average Exercise Price	Weighted Average Remaining Contractual Life in Years	Aggregate Intrinsic Value
Outstanding at December 31, 2015	73,870	$ 56.43	8.84	
Granted	33,250	$ 1.35		$ 1,540
Exercised	—	—		
Canceled	(30,206)	41.15		
Outstanding at December 31, 2016	76,914	$ 37.67	8.28	
Granted	—	$ —		$ —
Exercised	—	—		
Canceled	(6,283)	31.23		
Outstanding at December 31, 2017	70,631	$ 29.61	7.32	
Exercisable at December 31, 2017	52,364	$ 37.75		

Restricted Stock: The Company recognized share-based compensation expense related to restricted stock grants of approximately $26,000 for the year ended December 31, 2017. There were no restricted stock grants during the year ended December 31, 2017, and the weighted average estimated fair value of restricted stock grants for the year ended December 31, 2016 was $1.97.

There are no unvested shares of restricted stock as of December 31, 2017, and there is no unrecognized share-based compensation expense from restricted stock. As of December 31, 2017, approximately 496,000 shares remained available for future grants under the Restricted Stock Plan.

The following table summarizes stock option activity within the Restricted Stock Plan:

	Shares	Weighted Average Grant Date Fair Value
Non-vested at December 31, 2015	20,487	5.59
Granted	245,414	1.97
Vested	(176,693)	
Forfeited	(28,618)	
Non-vested at December 31, 2016	60,590	1.84
Granted	—	—
Vested	(59,390)	
Forfeited	(1,200)	
Non-vested at December 31, 2017	—	—

NOTE 26. INCOME TAXES

The Company records income taxes using the liability method. Under this method, deferred tax assets and liabilities are computed for the expected future impact of temporary differences between the financial statement and income tax bases of assets and liabilities using current income tax rates and for the expected future tax benefit to be derived from tax loss and tax credit carryforwards. ASC 740 provides detailed guidance for the financial statement recognition, measurement and disclosure of uncertain tax positions recognized in the financial statements. Tax positions must meet a “more-likely-than-not” recognition threshold before a benefit is recognized in the financial statements.

At December 31, 2017, the Company had $321,066,413 of cumulative net operating loss carryforwards for federal income tax purposes that were available to offset future taxable income through the year 2037. Under the Internal Revenue Code, the future utilization of net operating losses may be limited in certain circumstances where there is a significant ownership change. The Company prepared an analysis for the year ended December 31, 2012 and determined that a significant change in ownership has occurred as a result of the cumulative effect of the sales of common stock through its offerings. Such change limited the Company's utilizable net operating loss carryforwards to $234,024,680 for the year ended December 31, 2017. Available net operating loss carryforwards may be further limited in the event of another significant ownership change.

Deferred income taxes reflect an estimate of the cumulative temporary differences recognized for financial reporting purposes from that recognized for income tax reporting purposes. At December 31, 2017 and 2016, the components of these temporary differences and the deferred tax asset were as follows:

	As of December 31	
	2017	2016
Deferred Tax Asset		
Current:		
Accrued Expenses	$ —	$ 192,000
Inventory Allowance	141,000	234,000
Other	13,000	43,000
Total Current	154,000	469,000
Non-current:		
Stock Based Compensation-Stock Options and Restricted Stock	1,058,000	1,919,000
Tax effect of NOL carryforward	67,852,000	79,384,000
Depreciation	8,748,000	17,406,000
Amortization	(368,000)	(637,000)
Warranty reserve	14,000	68,000
Total Non-current	77,304,000	98,140,000
Net deferred tax asset	77,458,000	98,609,000
Less valuation allowance	(77,458,000)	(98,609,000)
Net deferred tax asset	$ —	$ —

In assessing the realizability of deferred tax assets, management considers whether it is more likely than not that some portion or all of the deferred tax assets will be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the periods in which those temporary differences become deductible. Management considers the scheduled reversal of deferred tax liabilities, projected future taxable income and tax planning strategies in making this assessment. Based upon the level of historical losses and projections of future taxable income over the periods in which the deferred tax assets are deductible, management believes it is not "more-likely-than-not" that the Company will realize the benefits of these deductible differences at December 31, 2017. The Company’s deferred tax valuation allowance of $77,458,000 reflected above is a decrease of $21,151,000 from the valuation allowance reflected as of December 31, 2016 of $98,609,000.

As of December 31, 2017, the Company has not recorded a liability for uncertain tax positions. The Company recognizes interest and penalties related to uncertain tax positions in income tax (benefit)/expense. No interest and penalties related to uncertain tax positions were accrued at December 31, 2017.

The Company’s effective tax rate for the years ended December 31, 2017 and 2016 differs from the statutory rate due to the following (expressed as a percentage of pre-tax income):

	2017	2016
Federal statutory rate	35.0 %	35.0 %
State statutory rate	2.8 %	2.6 %
Change in rate	— %	(0.4)%
Permanent tax differences	(2.3)%	(0.1)%
Change in fair value of derivatives	8.4 %	0.9 %
Deemed interest expense on debt discount	(5.5)%	(5.1)%
Loss on extinguishment of liabilities	(4.9)%	(5.9)%
Other	(0.9)%	(1.8)%
Increase in valuation allowance	(32.6)%	(25.6)%
	— %	— %

NOTE 27. RELATED PARTY TRANSACTIONS

On August 29, 2016, the Company entered into a note purchase agreement with Tertius Financial Group Pte. Ltd. ("TFG”) for the private placement of $330,000 of the Company’s original issue discount notes with an original maturity date of November 29, 2016. The notes bear interest of 6% per annum and principal and interest on the notes are payable upon maturity. The notes are unsecured and not convertible into equity shares of the Company.

On December 6, 2016, the Company issued a new $600,000 original issue discount note to TFG in exchange for (i) $200,000 of additional gross proceeds and (ii) cancellation of the existing outstanding $330,000 note. The new TFG note bears interest at a rate of 6% per annum and matures on December 31, 2017. Principal and interest on the new TFG note is payable at maturity. Following the transaction, the outstanding balance of the new note was $602,000 (including accrued and unpaid interest) with a discount of $60,000.

On January 19, 2017, the Company issued 333,333,333 shares of unregistered common stock in a private placement to TFG pursuant to a Securities Purchase Agreement (the “SPA”).

Pursuant to the SPA, the Company issued the 333,333,333 shares to TFG in exchange for cancellation of its $600,000 promissory note (including accrued interest of approximately $4,340) that was issued by the Company on December 6, 2016. The SPA does not provide any registration rights for the shares issued to TFG.

TFG is a Singapore based entity controlled and 50% owned by Ascent’s President & CEO, Victor Lee, and owns approximately 3% of the Company's outstanding shares at December 31, 2017.

All related party transactions were approved by our independent board of directors.

NOTE 28. COMMITMENTS AND CONTINGENCIES

The Company is subject to various legal proceedings, both asserted and unasserted, that arise in the ordinary course of business. The Company cannot predict the ultimate outcome of such legal proceedings or in certain instances provide reasonable ranges of potential losses. However, as of the date of this report, the Company believes that none of these claims will have a material adverse effect on its consolidated financial position or results of operations. In the event of unexpected subsequent developments and given the inherent unpredictability of these legal proceedings, there can be no assurance that the Company’s assessment of any claim will reflect the ultimate outcome, and an adverse outcome in certain matters could, from time to time, have a material adverse effect on the Company’s consolidated financial position or results of operations in particular quarterly or annual periods.

On October 21, 2011, the Company was notified that a complaint claiming $3.0 million for an investment banking fee (the “Lawsuit”) was filed by Jefferies & Company, Inc. (“Jefferies”) against the Company in New York State Supreme Court in the County of New York. In December 2010, Ascent and Jefferies entered into an engagement agreement (the “Fee Agreement”) pursuant to which Jefferies was hired to act as the Company's financial advisor in relation to certain potential transactions. In addition, Jefferies claimed an award for attorney's fees and prejudgment interest in the approximate amount of $1.2 million.

On April 16, 2014, the parties settled the lawsuit where the Company agreed to pay Jefferies a total of $2.0 million in equal installments over 40 months. The Company paid $339,481 during the year ended December 31, 2017.

The Company records a liability in its financial statements for costs related to claims, including settlements and judgments, where the Company has assessed that a loss is probable and an amount can be reasonably estimated. The Company accrued $1.7 million, the net present value of the $2.0 million settlement, as of December 31, 2013. As of December 31, 2017, the settlement had been redeemed in full and there was no remaining accrued litigation settlement, recorded as a current liability on the Consolidated Balance Sheets.

NOTE 29. RETIREMENT PLAN

On July 1, 2006, the Company adopted a qualified 401(k) plan which provides retirement benefits for all of its eligible employees. Under the plan, employees become eligible to participate at the first entry date, provided they are at least 21 years of age. The participants may elect through salary reduction to contribute up to ceilings established in the Internal Revenue Code. The Company will match 100% of the first six percent of employee contributions. In addition, the Company may make discretionary contributions to the Plan as determined by the Board of Directors. Employees are immediately vested in all salary reduction contributions. Rights to benefits provided by the Company's discretionary and matching contributions vest 100% after the first year of service for all employees hired before January 1, 2010. For employees hired after December 31, 2009, matching contributions vest over a three-year period, one-third per year. Payments for 401(k) matching totaled $199,669 and $338,230 for the years ended December 31, 2017 and 2016, respectively. Payments for 401(k) matching are recorded under "Research, development and manufacturing operations" expense and "Selling, general and administrative" expense in the Consolidated Statements of Operations.

NOTE 30. SUBSEQUENT EVENTS

Secured Promissory Notes

Between January 11, 2018 and March 21, 2018, the Company received the remaining $1,500,000 in proceeds per the Securities Purchase Agreement dated November 30, 2017 (Note 10). The funding occurred in six tranches as follows:

Date Received	Amount Received	Maturity Date
1/11/2018	$ 250,000	1/11/2019
1/25/2018	$ 250,000	1/25/2019
2/8/2018	$ 250,000	2/8/2019
2/22/2018	$ 250,000	2/22/2019
3/7/2018	$ 250,000	3/7/2019
3/21/2018	$ 250,000	3/21/2019

Between January 4, 2018 and March 26, 2018, the Company made five payments of $250,000 in stock. The aggregate payments of $1,250,000 resulted in the issuance of 2,450,980,392 shares of the Company's common stock.

As of the date of this report, the total principal balance of the notes under the aforementioned Securities Purchase Agreement was $4,665,675.

Promissory Notes

On January 31, 2018, the Company and a private investor entered into a promissory note agreement for the $177,500 of aggregate proceeds received in December 2017 (Note11). This $200,000 original issue discount note is unsecured, was issued with a discount of $22,500, bears interest at 12% per annum, and matures on December 29, 2018. As of the date of this filing, the principal balance on this note is $200,000.

On February 16, 2018, the Company received $30,000 in proceeds from a private investor. As of the date of this filing, the Company is expecting more funding from this investor and has not yet finalized the note.

St. George Convertible Note

In lieu of the cash payments for January and February 2018, we increased the reserve for the St. George Convertible Note by 2 billion shares, to a total of 6.88 billion shares.

On March 12, 2018, the investor, pursuant to the terms of the Convertible Promissory Note dated September 11, 2017 (Note 14), elected to redeem a portion of the note in conversion shares. On this date, the investor redeemed $75,000 of the note, resulting n the issuance of 187,500,000 shares of the Company's common stock. These shares were drawn out of the reserve created for this note the remaining reserves are 6.69 billion. As of the date of this report, the remaining principal balance on the St. George Convertible Note is $1,630,833.

BayBridge Convertible Note

On March 26, 2018, pursuant to the terms of the Convertible Promissory Note dated November 30, 2017, the investor converted $105,000 in principal and $20,717 in interest into shares of the Company's common stock, resulting in the issuance of 493,006,549 shares. As of the date of this report, the remaining principal balance on the BayBridge Convertible Note is $460,000.