

**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, 2023

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
(State or other jurisdiction of
incorporation or organization)

12300 Grant Street, Thornton, CO
(Address of principal executive offices)

20-3672603
(I.R.S. Employer
Identification No.)

80241
(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	Nasdaq Capital 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 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	<input type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input checked="" type="checkbox"/>	Smaller reporting company	<input checked="" type="checkbox"/>
		Emerging growth company	<input type="checkbox"/>

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. ☐

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements. ☐

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b). ☐

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, 2023, 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 \$4,134,100 based upon the last reported sale price of the registrant's common stock on that date as reported by Nasdaq Capital Market.

As of February 21, 2024, there were 3,793,843 shares of our common stock issued and outstanding.

ASCENT SOLAR TECHNOLOGIES, INC.
Form 10-K Annual Report
for the Fiscal Year ended December 31, 2023
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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:

- 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;
- 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 this listing of our common stock on the Nasdaq Capital Market;
- The commencement, or outcome, of legal proceedings against us, or by us, including ongoing litigation 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 photovoltaic modules and processes;
- Our ability to maintain effective internal controls over financial reporting;
- Our ability to achieve projected operation performance and cost metrics;
- General economic and business conditions, and in particular, conditions specific to 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 Technologies, Inc. ("Ascent" or the "Company") is a solar technology company that manufactures and sells photovoltaic ("PV") solar modules that are flexible, durable, and possess attractive power to weight and power to area performance. Our technology provides renewable power solutions to high-value production and specialty solar markets where traditional rigid solar panels are not suitable, including aerospace, agrivoltaics, and niche manufacturing/construction sectors. We operate in these target markets because they have highly specialized needs for power generation and offer attractive pricing due to the significant technological requirements.

We believe the value proposition of Ascent's proprietary solar technology not only aligns with the needs of customers in our target markets, but also overcomes many of the obstacles other solar technologies face in space, aerospace and other markets. Ascent designs and develops finished products for end users in these areas and collaborates with strategic partners to design and develop integrated solutions for products like satellites, spacecraft, airships and fixed-wing unmanned aerial vehicles ("UAVs"). Ascent sees significant overlap in the needs of end users across some of these markets 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 and will fill a void in the satellite market with a lower cost, lighter module and a product that, if struck by an object in space, will create limited space debris.

Product Update

During 2023, the Company also continued developing its zinc oxysulfide process. Zinc oxysulfide is used as a Cadmium-free window layer to improve the efficiency of Copper-Indium-Gallium-diSelenide ("CIGS")-based solar cells. The enhanced process will eliminate the usage of Cadmium Sulfide making it a more environmentally friendly process and product. Company continued to advance its CIGS-based solar cells resulting in more powerful solar cells. Specifically, the Company's Titan module, which the Company is planning to ship as early as Q1 2024, has 16.5W beginning of life output in AM0 conditions. Using an estimated degradation rate of 0.5% per year (crystalline degrades at an estimated rate of 1% per year), the Titan module has an expected end of life power density of 165w/m² output. During 2023, the Company also achieved spaceflight heritage for its space PV array products. Beyond establishment of NASA Technology Readiness Level 9 (TRL9) for the Company's products, this achievement also validates Ascent's CIGS material, manufacturing, integration, and quality processes, representing a significant milestone for its space solutions.

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 integrated solutions anywhere that may need power generation such as portable power solutions, vehicles in space or in flight or dual-use installations on agricultural land.

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.

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 aerospace, agrivoltaics 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 power PV thin film product that positions us to penetrate a wide range of attractive high value added markets such as aerospace and agrivoltaics. In addition, we have provided renewable power solutions for off grid, portable power, transportation, defense, 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 space and near-space solar power application solutions, agrivoltaics, portable power systems, and transportation integrated applications 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 offers the customer a lightweight and durable solution.

- ***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 20 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 including satellites, spacecraft, aerospace and agrivoltaics 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.

We believe the value proposition of Ascent's proprietary solar technology not only aligns with the needs of customers in these markets, 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.

Competition

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).

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, and MiaSolé to be our closest competitors in terms of technology in the specialty PV market.

Research and Development and Intellectual Property

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 intend to continue to invest in research and development in order to provide near term improvements to our manufacturing process (including to reduce costs) and products (including improve technology to increase power), as well as to identify next generation technologies relevant to both our existing and potential new markets. During the years ended December 31, 2023 and 2022 we incurred approximately \$3,222,283 and \$5,975,921, respectively, in research, development

and manufacturing operations costs, which include research and development incurred in customizing products for customers, as well as manufacturing costs incurred while developing our product lines and manufacturing process. We also plan to continue to take advantage of research and development contracts to fund a portion of this development.

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

Issued Patents

- 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. 9,538,671 entitled "System For Housing And Powering A Battery-Operated Device And Associated Methods" (issued January 3, 2017)
- 7 US Patent No. D781,228 entitled "Pocket-Sized Photovoltaic Based Fully Integrated Portable Power System" (issued March 14, 2017)
- 8 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)
- 9 US Patent No. 9,634,175 entitled "Systems and Methods for Thermally Managing High-Temperature Processes on Temperature Sensitive Substrates" (issued April 25, 2017)
- 10 US Patent No. 9,640,706 entitled "Hybrid Multi-Junction Photovoltaic Cells and Associated Methods" (issued May 2, 2017)
- 11 US Patent No. 9,640,692 entitled "Flexible Photovoltaic Array with Integrated Wiring and Control Circuitry, and Associated Methods" (issued May 2, 2017)
- 12 US Patent No. 9,653,635 entitled Flexible High-Voltage Adaptable Current Photovoltaic Modules and Associated Methods (issued May 16, 2017)
- 13 US Patent No. 9,780,242 entitled "Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates" (issued October 3, 2017)
- 14 US Patent No. 9,929,306 entitled "Array of Monolithically Integrated Thin Film Photovoltaic Cells and Associated Methods" (issued March 27, 2018)

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, 2023, we had 16 full-time and 2 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 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, 2023, our cash used in operations was \$9,536,879. At December 31, 2023, we had cash and equivalents on hand of \$1,048,733.

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 2023 year, and are not anticipated to result in a positive cash flow for the next twelve months.

During 2023, we entered into multiple financing agreements to fund operations, raising approximately \$11.2 million in gross proceeds, of which \$7.1 million was used to pay down debt and the Company's Series 1B preferred stock. 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, 2023 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 2024 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, 2023 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, who deal directly with end users in our target markets;
- Our ability to maintain the listing of our common stock on the Nasdaq Capital 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 \$17,069,896 for the year ended December 31, 2023 and reported an accumulated deficit of \$482,478,436 as of December 31, 2023. 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 successfully 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 agrivoltaics, 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 agrivoltaics, 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. Paul Warley, 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 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, 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 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 have agreements with international parties that subject us to a number of risks, including potential unfavorable political, regulatory, labor, legal and tax conditions in foreign countries. We purchased manufacturing equipment in Switzerland and, in the future, may look to expand our operations abroad 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 enforcing agreements in foreign legal systems;
- Difficulty in procuring supplies and supply contracts abroad;
- 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.

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 Nasdaq Capital 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 period from January 1, 2023 through December 31, 2023, our common stock ranged from \$0.755 to \$286.00, and in 2022, our common stock ranged from \$300 to \$6,600, 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 Nasdaq Capital Market. 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 Nasdaq Capital market 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 shares of our common stock that may be issued (i) upon the exercise of our outstanding common stock warrants, (ii) upon the conversion of our outstanding senior secured convertible notes and conversions payable, and (iii) pursuant to new securities that we may issue in the future. We may issue substantial amounts of additional common stock in connection with the exercise or conversion of our outstanding common stock warrants, senior secured convertible notes, and conversions payable. Certain of these financing agreements contain variable pricing mechanisms. The number of shares that we will issue pursuant to these agreements, therefore, will fluctuate based on the price of our common stock.

We currently have 5,596,232 outstanding common stock warrants issued in connection with our December 2022 senior secured convertible note financing with a per share exercise price of \$1.76. These warrants have a “full ratchet” adjustment feature that can be triggered by new offerings of our securities at a per share price less than the then effective warrant price.

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. Depending on market liquidity at the time, sales of such newly issued additional shares into the market may cause the trading price of our common stock to fall.

Depending on market liquidity at the time, sales of such newly issued additional shares into the market may cause the trading price of our common stock to fall.

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.

We may fail to continue to meet the listing standards of The Nasdaq Capital Market Failure to maintain the listing of our common stock with a U.S. national securities exchange could adversely affect the liquidity of our common stock. Our common stock is currently listed on The Nasdaq Capital Market. In order to maintain that listing, we must satisfy minimum financial and other continued listing requirements and standards.

Nasdaq \$1.00 Bid Price Requirement

On December 11, 2023, the Company received a written notice (the “Notice”) from the Listing Qualifications Department of The Nasdaq Stock Market (“Nasdaq”) indicating that the Company is not in compliance with the \$1.00 Minimum Bid Price requirement set forth in Nasdaq Listing Rule 5550(a)(2) for continued listing on The Nasdaq Capital Market (the “Bid Price Requirement”).

The Notice does not result in the immediate delisting of the Company’s common stock from The Nasdaq Capital Market.

The Nasdaq Listing Rules require listed securities to maintain a minimum bid price of \$1.00 per share and, based upon the closing bid price of the Company’s common stock for the 30 consecutive business days for the period October 27 through December 8, 2023, the Company no longer meets this requirement.

The Notice indicated that the Company will be provided 180 calendar days (or June 10, 2024) in which to regain compliance. If at any time during this 180 calendar day period the bid price of the Company’s common stock closes at or above \$1.00 per share for a minimum of ten consecutive business days, the Nasdaq staff (the “Staff”) will provide the Company with a written confirmation of compliance and the matter will be closed.

Alternatively, if the Company fails to regain compliance with Rule 5550(a)(2) prior to the expiration of the initial 180 calendar day period, the Company may be eligible for an additional 180 calendar day compliance period, provided (i) it meets the continued listing requirement for market value of publicly held shares and all other applicable requirements for initial listing on The Nasdaq Capital Market (except for the Bid Price Requirement) and (ii) it provides written notice to Nasdaq of its intention to cure this deficiency during the second compliance period by effecting a reverse stock split, if necessary. In the event the Company does not regain compliance with Rule 5550(a)(2) prior to the expiration of the initial 180 calendar day period, and if it appears to the Staff that the Company will not be able to cure the deficiency, or if the Company is not otherwise eligible, the Staff will provide the Company with written notification that its securities are subject to delisting from The Nasdaq Capital Market. At that time, the Company may appeal the delisting determination to a Hearings Panel.

The Company intends to monitor the closing bid price of its common stock and is considering its options to regain compliance with the Bid Price Requirement. The Company’s receipt of the Notice does not affect the Company’s reporting requirements with the Securities and Exchange Commission.

Nasdaq Stockholder Equity Requirement

Nasdaq Listing Rule 5550(b)(1) requires companies listed on Nasdaq to maintain a minimum of \$2,500,000 in stockholders’ equity for continued listing. In our annual report on Form 10-K for the year ended December 31, 2023, the Company reported stockholders’ equity of \$(1,526,611). The Company, therefore, may shortly receive a written notice from Nasdaq indicating that we are not in compliance with minimum stockholders’ equity requirement.

Typically, such a notice would have no immediate impact on the listing of the Company’s common stock. Nasdaq would typically provide the Company with 45 calendar days to submit a plan to regain compliance. If the plan is accepted, the Company would typically be granted up to 180 calendar days from notice date to evidence compliance. There can be no assurance that the Company would be able to regain compliance with all applicable continued listing requirements or that its plan would be accepted by the Nasdaq staff. In the event the plan would not be accepted by the Nasdaq staff, or in the event the plan would be accepted and the extension granted but the Company fails to regain compliance within the plan period, the Company would have the right to a hearing before an independent panel. The hearing request would stay any suspension or delisting action pending the conclusion of the hearing process and the expiration of any additional extension period granted by the panel following the hearing.

If we fail to satisfy the continued listing requirements of Nasdaq, Nasdaq may take steps to delist our securities. Such a delisting would likely have a negative effect on the price and liquidity of our common stock and would impair your ability to sell or purchase our common stock when you wish to do so. In the event of a delisting, we would take actions to restore our compliance with Nasdaq’s listing requirements, but we can provide no assurance that any such action taken by us would allow our common stock to become listed again, stabilize the market price or improve the liquidity of our securities, prevent our common stock from dropping below the Nasdaq minimum share price requirement or prevent future non-compliance with Nasdaq’s listing requirements.

If our common stock were to be delisted from Nasdaq, our common stock could begin to trade on one of the markets operated by OTC Markets Group, including OTCQX, OTCQB or OTC Pink (formerly known as the “pink sheets”), as the case may be. In such event, our common stock could be subject to the “penny stock” rules which, among other things, require brokers or dealers to approve investors’ accounts, receive written agreements and determine investor suitability for transactions and disclose risks relating to investing in the penny stock market. Any such delisting of our common stock could have an adverse effect on the market price of, and the efficiency of the trading market for our common stock, not only in terms of the number of shares that can be bought and sold at a given price, but also through delays in the timing of transactions and less coverage of us by securities analysts, if any. Also, if in the future we were to determine that we need to seek additional equity capital, it could have an adverse effect on our ability to raise capital in the public or private equity markets. In addition, there can be no assurance that our common stock would be eligible for trading on any such alternative exchange or markets.

Delisting from Nasdaq could adversely affect our ability to raise additional financing through public or private sales of equity securities, would significantly affect the ability of investors to trade our securities and would negatively affect the value and liquidity of our common stock. Delisting could 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 1C. Cybersecurity

We recognize the importance of securing our data and information systems and have a process for assessing, mitigating, overseeing and managing cybersecurity and related risks. This process is supported by both management and our Board of Directors.

The Chief Operations Officer (“COO”), who reports to the CEO, leads our cybersecurity function and is responsible for managing our cybersecurity risk and the protection of our networks, systems, and data. The COO uses both internal and external resources to execute this process including security tools that help prevent, identify, escalate, investigate and resolve security incidents in a timely manner and tools that help prevent unauthorized access. The Company, with the oversight of the COO, also requires all employees to complete an annual cybersecurity training course.

Our Board of Directors is responsible for overseeing our enterprise risk management activities. The Board of Directors receives an update on the Company’s risk management process and the risk trends related to cybersecurity at least annually. Additionally, on a quarterly basis, the Audit Committee will receive updates from Management on cybersecurity.

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 25,000 square feet of fully equipped office space and 50,000 square feet of fully equipped manufacturing space. We consider our office space adequate for our current operations.

Item 3. Legal Proceedings

From time to time, we may be involved in litigation relating to claims arising out of our operations in the normal course of business. Except as noted below, we are not currently a party to any material legal proceedings, the adverse outcome of which, in our management's opinion, individually or in the aggregate, could have a material adverse effect on the results of our operations or financial position. There are no material proceedings in which any of our directors, officers or affiliates or any registered or beneficial stockholder of more than 5% of our common stock is an adverse party or has a material interest adverse to our interest.

On August 15, 2023, H.C. Wainwright & Co., LLC ("Wainwright") filed an action against the Company in the New York State Supreme Court in New York County. The complaint alleges a breach by the Company of an investment banking engagement letter entered into in October 2021. The Wainwright engagement letter expired in April 2022 without any financing transaction having been completed. The complaint claims that Wainwright is entitled, under a "tail provision", to an 8% fee and 7% warrant coverage on the Company's \$15 million secured convertible note financing. The complaint seeks damages of \$1.2 million, 2,169.5 common stock warrants with a per share exercise price of \$605, and attorney fees. While it is too early to predict the outcome of this legal proceeding or whether an adverse result would have a material adverse impact on our operations or financial position, we believe we have meritorious defenses and intend to defend this legal matter vigorously.

For additional information on contingencies and legal proceedings, see "Note 17 - Commitments and Contingencies" to our financial statements included in 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

On August 24, 2022, our common stock began trading on the Nasdaq Capital Market. Our trading symbol is "ASTI."

Holders

As of December 31, 2023, the number of record holders of our common stock was 34. 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, 2023 and 2022, 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, 2023, 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. [Reserved]

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, 2023 we generated \$458,260 of total revenue, of which, product sales accounted for \$397,886 and milestone and engineering revenue accounted for \$60,374. As of December 31, 2023, we had an accumulated deficit of approximately \$482,478,436.

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, and distributors, who deal directly with end users in our target markets;
- Our ability to maintain the listing of our common stock on the Nasdaq Capital Market;
- 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; 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 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 estimated 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 (estimated using the undiscounted cash flows) and the carrying value of the assets.

Convertible Debt: The Company evaluates its convertible debt instruments to determine if there is an embedded derivative or other feature that requires bifurcation from the host contract. Please refer to Note 10 for further discussion on each convertible debt.

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.

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 and engineering revenue. Each milestone and engineering 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.

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, net of estimated forfeitures, is recognized as expense on a straight-line basis, 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. The Company estimates the fair value of its restricted stock awards as its stock price on the grant date.

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 adopted ASU 2020-06 on January 1, 2023.

Management is evaluating the impact of other new pronouncements issued but not effective as of December 31, 2023. See Note 2 for additional information.

Results of Operations

Comparison of the Years Ended December 31, 2023 and 2022

	Year Ended December 31,		
	2023	2022	\$ Change
Revenues			
Product Revenue	397,886	694,286	(296,400)
Milestone and engineering	60,374	528,500	(468,126)
Total Revenues	458,260	1,222,786	(764,526)
Costs and Expenses			
Cost of Revenue	1,892,341	2,011,459	(119,118)
Research, development and manufacturing operations	3,222,283	5,975,921	(2,753,638)
Selling, general and administrative	5,364,523	4,736,562	627,961
Share-based compensation	2,243,445	5,478,734	(3,235,289)
Depreciation and amortization	95,238	75,645	19,593
Impairment loss	3,283,715	-	3,283,715
Total Costs and Expenses	16,101,545	18,278,321	(2,176,776)
Loss From Operations	(15,643,285)	(17,055,535)	1,412,250
Other Income/(Expense)			
Other Income/(Expense), net	747,739	33,100	714,639
Interest Expense	(2,174,118)	(2,704,909)	530,791
Total Other Income/(Expense)	(1,426,379)	(2,671,809)	1,245,430
Income/(Loss) on Equity Method Investment	(232)	(27,361)	27,129
Net Income/(Loss)	(17,069,896)	(19,754,705)	2,684,809

Revenues. Total revenues decreased by \$764,526, or by 63%, for the year ended December 31, 2023 when compared to the same period in 2022. The decrease in sales is due primarily to Milestone and engineering revenue from TubeSolar in 2022 which was not repeated in the current year. Additionally, in 2022, the Company had a large order from one customer that was not repeated in 2023. This is partially offset with revenue recognized from fulfilling a supply agreement under the Asset Purchase Agreement executed in April 2023.

Cost of revenues. Cost of revenues is comprised primarily of repair and maintenance, direct labor and overhead expenses. Our cost of revenues decreased by \$119,118, or 6% for the year ended December 31, 2023 when compared to the same period in 2022. The decrease in cost of revenues is primarily due to the decrease in manufacturing costs as the Company redeployed its manufacturing facilities to a research facility in March 2023 and restarted limited manufacturing in late 2023. This is partially offset by increased expenses from our asset acquisition of Flisom's manufacturing equipment and employee contract. Management believes our factory is currently significantly under-utilized, and a substantial increase in revenue would result in marginal increases to indirect labor and overhead included in the cost of revenues.

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. Research, development and manufacturing operations costs decreased by \$2,753,638 or 46%, for the year ended December 31, 2023 when compared to the same period in 2022. This is primarily due to a decrease in preproduction and manufacturing activities, as the Company redeployed its Thornton manufacturing facility as a perovskite research facility in March 2023 and restarted limited manufacturing in late 2023.

Selling, general and administrative. Selling, general and administrative expenses increased by \$627,961, or 13%, for the year ended December 31, 2023 when compared to the same period in 2022. The increase in costs is due primarily to increased professional services and other administrative expenses. This increase is partially offset by one-time termination expense of approximately \$500,000 and \$157,000 recognized with the departure of our former CEO and CFO, respectively, in 2022.

Share-based compensation. Share-based compensation expense decreased by \$3,235,289 or 59%, for the year ended December 31, 2023 when compared to the same period in 2022. The decrease is primarily due to the employment termination

of former CEO in April 2023. The year ended 2022 expense also includes the immediate vesting of 20% of the former CEO's restricted stock units.

Impairment loss. The Company recognized an impairment loss of \$3,283,715 primarily on the manufacturing assets purchased from Flisom during the year ended December 31, 2023. The Company did not recognize an impairment loss during the year ended December 31, 2022.

Other Income/(Expense). Other expense decreased by \$1,245,430 or 47%, for the year ended December 31, 2023 when compared to the same period in 2022. The decline is due primarily to a one-time employment retention credit received and a gain on lease modification. Additionally, the Company recorded accelerating debt discount as interest expense in the prior year. With the adoption of ASU 2020-06, the accelerated debt discount is now recorded in stockholders' equity.

Net Income/(Loss). Our Net Loss was \$17,069,896 for the year ended December 31, 2023, compared to Net Loss of \$19,754,705 for the year ended December 31, 2022, a decrease of \$2,684,809. The decrease 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, 2023 the Company used \$9,536,879 in cash for operations.

Additional projected revenues are not anticipated to result in a positive cash flow position for the year 2024 overall and, as of December 31, 2023, the Company has working capital deficit of \$4,225,559. As such, additional financing will be required for the Company to reach a level of sufficient sales to achieve profitability.

The Company continues to accelerate sales and marketing efforts related to its 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.

Management cannot provide any assurances that the Company will be successful in accomplishing any of its plans. These 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, 2023 and 2022

For the year ended December 31, 2023, our cash used in operations was \$9,536,879 compared to \$10,506,575 for the year ended December 31, 2022, a decrease of \$969,696. The decrease is primarily the result of the decrease in manufacturing, the redeployment of the Thornton manufacturing facility as a Perovskite research facility, and the restart of limited manufacturing. For the year ended December 31, 2023, cash used in investing activities was \$3,877,366 compared to cash used in investing activities of \$265,472 for the year ended December 31, 2022. This change was primarily the result of the purchase of Flisom's manufacturing equipment in Switzerland. During the year ended December 31, 2023, cash used in operations of \$9,536,879 were primarily funded through \$11,200,000 in proceeds from issuances of preferred and common stock during 2023 and \$13,500,000 in proceeds from the issuance of convertible debt in 2022.

Off Balance Sheet Transactions

As of December 31, 2023, 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**

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.

We currently do not engage in hedging transactions to reduce our exposure to changes in currency exchange rates, although, we may do so in the future.

We hold no significant funds and have no future obligations denominated in foreign currencies as of December 31, 2023.

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, 2023, 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, 2023. Based on this evaluation, our management concluded the design and operation of our disclosure controls and procedures were effective as of December 31, 2023.

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 were effective as of December 31, 2023. 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.

Changes in Internal Control Over Financial Reporting

There were no other changes in internal control over financial reporting during the year ended December 31, 2023 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 February 21, 2024, are as follows:

Name	Age	Position
Paul Warley	62	President and Chief Executive Officer, Director
Jin Jo	46	Chief Financial Officer
Bobby Gulati	59	Chief Operating Officer
David Peterson	54	Chairman of the Board, Director
Forrest Reynolds	53	Director
Louis Berezovsky	58	Director
Gregory Thompson	68	Director

Paul Warley has been Chief Executive Officer of the Company since May 2, 2023. Prior to then, Mr. Warley served as our Chief Financial Officer from December 2022 to May 2023. Mr. Warley was elected to our Board in December 2023. Mr. Warley has significant experience in corporate turnarounds, restructuring, cross-border trade and capital advisory work. From 2015 to 2022, Mr. Warley was president of Warley & Company LLC, a strategic advisory firm providing executive management, capital advisory and M&A services to middle-market companies in the service, construction, technology, oil & gas, clean energy, food, retail and green-building sectors. While at Warley & Company, from 2018 to 2019 Mr. Warley was engaged as Chief Executive Officer and CFO of 360Imaging, a provider of products and services for implant surgery and digital dentistry. From 2011 to 2015, Mr. Warley served clients in the alternative energy industry as a managing director and additionally was Chief Compliance Officer with Deloitte Corporate Finance. From 1997 to 2011, Mr. Warley was Managing Director and Region Manager for GE Capital. From 1984 to 1997, Mr. Warley was with Bank of America and Bankers Trust as a Senior Vice President. Mr. Warley holds the Financial Industry Regulatory Authority Series 7, 24 and 63 licenses. He earned his B.S. degree in Business Administration from The Citadel (The Military College of South Carolina) and served in the U.S. Army, attaining the rank of Captain. While at Warley & Company LLC, Mr. Warley provided corporate finance consulting services to BD1 Investment Holding LLC, one of the Company's largest stockholder. We believe Mr. Warley is well-qualified to serve as our CEO due to his business experience.

Jin Jo has been Chief Financial Officer of the Company since May 2023. Ms. Jo joined the Company in June 2021 as Financial Controller. Ms. Jo has over 20 years in accounting. From 2015 to 2021, Ms. Jo was the head of technical accounting of Empower Retirement, a financial services company, where her primary focus was accounting research for complex new products, investments and transactions, and new accounting standards implementation on International Financial Reporting Standards, US GAAP and insurance Statutory Accounting Principles. From 2011 to 2015, Ms. Jo was an Inspection Specialist at the Public Company Accounting Oversight Board where she assessed auditor compliance with audit professional standards. Ms. Jo started her career in public accounting, spending 11 years in the audit and assurance practice serving both public and private companies.

Ms. Jo is a certified public accountant in the state of Colorado and earned her B.S. degree in Business Administration from the University of Colorado, Boulder. We believe Ms. Jo is well-qualified to serve as our CFO due to her business experience.

Bobby Gulati has been Chief Operating Officer since May 2023. He has over 30 years of executive leadership experience in engineering and manufacturing roles. Mr. Gulati joined Ascent in February 2012 as Head Equipment Engineer. In March 2014, he was promoted to Director of Equipment Engineering with emphasis on International Business Development. In 2020, Mr. Gulati was promoted to Chief Information Officer.

From 2010 to 2012 Mr. Gulati was the Director of Equipment Engineering for Twin Creeks Technologies, an amorphous silicon solar manufacturing company, and was responsible for the operations of the 5MW solar cell manufacturing facility in Senatobia, Mississippi. From 2001 to 2010, Mr. Gulati was the co-founder and President of TriStar Systems, a manufacturer of automated manufacturing and assembly equipment for the solar, aerospace and disk drive industries. From 1992 to 2000, Mr. Gulati was the co-founder and Chief Operating Officer of the publicly traded company NexStar Automation, whose focus was designing and building automated production equipment for the semiconductor and medical disposable industries. Mr. Gulati earned his B.S. degree in Electrical Engineering with a minor in Computer Science and Robotics from the University of Colorado, Denver.

David Peterson has served on our Board since December 2020. Mr. Peterson has over 25 years of business management experience, including 9 years as a private equity investor, 6 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 and Michael Gilbreth, our former CFO, are cousins. We believe Mr. Peterson is well-qualified to serve as a director due to his extensive management and board experience.

Forrest Reynolds has served on our Board since September 2022. He has over 28 years of business and management experience and is currently the Managing Partner of CalTex Capital, LLC, a privately held investment firm, as well as a Managing Director of The Vortex Group Family Office, LLC, a private family office, both of which are based in Texas. Previously, Mr. Reynolds served as the Chief Restructuring Officer for Centaur Gaming, LLC, a gaming development company located in Indianapolis, Indiana. In this capacity, Mr. Reynolds managed a \$1.0 billion Chapter 11 bankruptcy reorganization for the company. Prior to that, Mr. Reynolds worked in the investment banking industry for over 14 years holding various positions with several multinational investment banks including Credit Suisse, BT Alex Brown (later Deutsche Bank) and UBS. Mr. Reynolds sits on the board of several private companies and is actively involved with several charitable organizations. Mr. Reynolds graduated from The University of Texas at Austin where he received a B.B.A. in Finance and a B.A. in Economics. We believe Mr. Reynolds is well-qualified to serve as a director due to his knowledge and business experience.

Louis Berezovsky has served on our Board since September 2022. He joined Eagle Infrastructure Services in July 2013 and leads the Finance and Accounting, M&A, Human Resources, Legal and IT functions. He has more than 30 years of experience in senior financial management positions across a variety of industries including 25 years of working in private equity sponsored portfolio companies. His accomplishments include the completion more than 60 acquisitions as well as multiple recapitalizations and successful sale processes. Prior to joining Eagle, Mr. Berezovsky previously served as Executive Vice President and Chief Financial Officer of ABRA Auto Body and Glass, Chief Financial Officer of ConvergeOne, and Chief Financial Officer of AIR-serv.

After receiving his B.S. in Accounting from the University of Minnesota, Carlson School of Management, he began his career at a Minneapolis based CPA firm. He is a Certified Management Accountant (CMA). He has also served as a member of the Board of Directors and as the Chairman of the Finance Committee for the Better Business Bureau of Minnesota and North Dakota since 2012. We believe Mr. Berezovsky is well-qualified to serve as a director due to his knowledge and business experience.

Gregory Thompson has served on our Board since April 2023. He is a four-time public company CFO with extensive global experience across several industries including technology, manufacturing, chemicals, building products, medical equipment, software and services, and public accounting. From December 2016 through June 2021, Mr. Thompson was EVP and CFO of KEMET Corporation (NYSE: KEM), a manufacturer of a broad selection of capacitor technologies, and a variety of other passive electronic components. In June 2020, KEMET was acquired by Yageo Corporation for approximately \$1.8 billion. From 2008 to 2016, Mr. Thompson was EVP and CFO of Axiall Corporation (NYSE: AXLL), a manufacturer and marketer of chlorovinyls and aromatics (acetone, cumene, phenol). Axiall was sold to Westlake Chemical Corporation in late 2016. Prior to Axiall, Mr. Thompson was CFO of medical equipment manufacturer Invacare Corporation (NYSE: IVC) from 2002 to 2008, CFO of Sensormatic Electronics Corporation from 2000 to 2002, and Corporate Controller of Sensormatic from 1997 to 2000. Previously at Wang Laboratories, Inc. Mr. Thompson served as Vice President and Corporate Controller from 1994 to 1997 and Assistant controller from 1990 to 1994. He began his career at Price Waterhouse and Coopers & Lybrand where he spent 13 years serving international clients in industries including chemicals, construction, distribution, manufacturing, metals, retail, and technology.

Mr. Thompson earned a Bachelor of Science, Accounting from Virginia Tech in 1977. He is a Certified Public Accountant, and a Member of the American Institute of Certified Public Accountants. We believe Mr. Thompson 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 2022 or 2023 by Section 16(a) under the Exchange Act, except that Forrest Reynolds filed one late Form 4 in 2023.

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 four members. The Board has determined that the following directors are “independent” as required by the listing standards of the Nasdaq Capital Market and by our corporate governance guidelines: Mr. Peterson, Mr. Reynolds, Mr. Berezovsky and Mr. Thompson.

Our Certificate of Incorporation provides that the Board of Directors will be divided into three classes. Our Class 1 directors are Forrest Reynolds and Louis Berezovsky. Our Class 2 directors are Paul Warley and Gregory Thompson. Our Class 3 director is David Peterson.

Board Leadership Structure and Role in Risk Oversight

Our corporate governance guidelines provide that unless the board chair is an independent director, the board shall appoint a Lead Independent Director. The Lead Independent Director chairs the executive sessions of the independent directors, coordinates the activities of the other independent directors and performs such other duties as deemed necessary by the board from time to time. Our Chairman is independent and as such, no Lead Independent Director has been appointed.

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. Berezovsky, Mr. Thompson and Mr. Reynolds. Mr. Berezovsky 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 Nasdaq Capital Market, and that Mr. Berezovsky 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. Berezovsky, Mr. Thompson and Mr. Reynolds. Mr. Reynolds 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.

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 Mr. Berezovsky, Mr. Thompson and Mr. Reynolds. Mr. Thompson 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..

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 18 meetings in 2023. Our Audit Committee held four meetings, our Compensation Committee held one meeting, and our Nominating and Governance Committee held one meeting in 2023. 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.

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.

Compensation Committee Interlocks and Insider Participation

None of the current members of our compensation committee has ever been an executive officer or employee of ours. None of our executive officers currently serves, or has served during the last completed fiscal year, on the compensation committee or board of directors of any other entity that has one or more executive officers serving as a member of our board of directors or compensation committee.

Director Compensation

Currently, each of our non-executive directors, consisting of Mr. Berezovsky, Mr. Thompson, Mr. Peterson and Mr. Reynolds, receive an annual retainer of \$55,000 in cash. Additionally, in 2023, Mr. Berezovsky, Mr. Michael French (resigned from the Board of Directors on March 18, 2023) and Mr. Reynolds were granted in 2022 and paid in 2023 a one-time cash fee of \$20,000, \$20,000 and \$25,000, respectively. Mr. Berezovsky, Mr. Thompson, Mr. Peterson and Mr. Reynolds received an equity grant of 25,000, 25,000, 30,000, and 25,000 restricted stock units ("RSUs"), respectively, in January, 2024. A third of these RSUs will vest on March 31, 2024, a third will vest on January 1, 2025 and the remaining third will vest on January 1, 2026. 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, 2023:

2023 Director Compensation Table

Name	Fees Earned or Paid in Cash (\$)	Stock Awards (\$)(1)	Option Awards (\$)(1)	All Other Compensation (\$) (1)	Total (\$)
Forrest Reynolds	54,700	-	-	-	54,700
Louis Berezovsky	54,700	-	-	-	54,700
Gregory Thompson (2)	40,200	-	-	-	40,200
David Peterson (3)	26,400	-	-	-	26,400
Michael French (4)	12,700	-	-	-	12,700
Paul Warley (5)	-	-	-	-	-

(1) None.

(2) In April, 2023, Gregory Thompson was appointed to the Company's board of directors.

(3) In August, 2023, the Company's board of directors concluded that David Peterson is an independent member in accordance with the Nasdaq listing rules and the Company commenced paying him an annual retainer of \$55,000, including a catch up retainer payment for services performed in July.

- (4) In March, 2023, Michael French resigned from the Company's board of directors. His resignation was not the result of any dispute or disagreement with the Company on any matter relating to the operations, policies or practices of the Company.
- (5) Paul Warley was elected to the Company's board of directors in December, 2023. As a non-independent director, he will not receive compensation for his 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.

Policy on Trading, Pledging and Hedging of Company Stock

Certain transactions in our securities (such as purchases and sales of publicly traded put and call options, and short sales) create a heightened compliance risk or could create the appearance of misalignment between management and stockholders. In addition, securities held in a margin account or pledged as collateral may be sold without consent if the owner fails to meet a margin call or defaults on the loan, thus creating the risk that a sale may occur at a time when an officer or director is aware of material, non-public information or otherwise is not permitted to trade in Company securities. Our insider trading policy expressly prohibits derivative transactions of our stock by our executive officers and directors.

Rule 10b5-1 Sales Plans

Our policy governing transactions in our securities by directors, officers, and employees permits our officers, directors, and certain other persons to enter into trading plans complying with Rule 10b5-1 under the Exchange Act. Generally, under these trading plans, the individual relinquishes control over the transactions once the trading plan is put into place and can only put such plans into place while the individual is not in possession of material non-public information. Accordingly, sales under these plans may occur at any time, including possibly before, simultaneously with, or immediately after significant events involving our company. During 2023, none of our directors or executive officers had a Rule 10b5-1 in effect.

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 2023, and up to two of our next most highly compensated executive officers in respect of their service to our Company for 2023. Our named executive officers, or the Named Executive Officers, for the year ended December 31, 2023, are:

- Paul Warley, our CEO at December 31, 2023
- Jeffrey Max, our former CEO;
- Jin Jo, our CFO at December 31, 2023; and
- Bobby Gulati, our COO at December 31, 2023

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, 2023 and 2022.

Summary Compensation Table

Name and Principal Position	Year	Salary (\$)	Bonus (\$)	Stock Awards (\$)	Option Awards (\$)	All Other Comp (\$)	Total (\$)
Paul Warley - Chief Executive Officer (1)	2023	384,600	100,000	-	-	-	484,600
	2022	17,300	-	2,086,000	-	-	2,103,300
Jeffrey Max - Former Chief Executive Officer (2)	2023	317,500	-	-	-	1,600 (3)	319,100
	2022	227,400	-	18,980,800	-	21,500 (4)	19,229,700
Jin Jo - Chief Financial Officer (5)	2023	198,000	45,000	-	-	-	243,000
Bobby Gulati - Chief Operating Officer (6)	2023	189,200	25,000	-	-	-	214,200

- (1) Mr. Warley joined the Company in December 2022 as the Company's CFO and was appointed CEO in May 2023. Mr. Warley's employment agreement provided for annual base salary of \$305,000, which increased to \$350,000 in December 2022, after the Company raised a minimum \$10 million of new capital. Mr. Warley's May 2023 CEO employment agreement provides for an annual base salary of \$400,000 and a one-time bonus of \$100,000. In connection with Mr. Warley's hiring in December 2022 as the Company's CFO, Mr. Warley was granted an inducement grant of 3,500 RSUs for an aggregate of 3,500 shares of Ascent's common stock valued at approximately \$2,086,000 on grant date. 20% of the RSUs are fully vested upon grant. The remaining 80% of the RSUs vests in equal monthly increments over the next thirty-six months.
- (2) Mr. Max joined the Company in September 2022. Mr. Max's employment agreement provides an annual base salary of \$850,000 of which, \$500,000 was initially deferred and accrued interest at an annual rate of 4% until the Company raised a minimum \$10 million of new capital. Upon completion of the capital raise, Mr. Max received his deferred compensation, including approximately \$800 of interest resulting in salary of approximately \$227,400 in 2022. Mr. Max was also granted an inducement grant of RSU for an aggregate of 6,284 shares of Ascent's common stock valued at approximately \$18,980,000 on grant date. 20% of the RSUs are fully vested upon grant. The remaining 80% of the RSUs vests in equal monthly increments over the next thirty-six months. On April 26, 2023, the Company's board terminated Mr. Max as the Company's CEO.
- (3) The Company paid \$1,600 as a car allowance to Mr. Max.
- (4) The Company also paid \$20,200 to Mr. Max's attorneys for fees incurred in connection with the drafting, negotiation and execution of his employment agreement and approximately \$1,300 as a car allowance.
- (5) Ms. Jo joined the Company in June 2021 as the Company's Financial Controller and was appointed CFO in May 2023. Ms. Jo's employment agreement provides an annual base salary of \$225,000 and a one-time bonus of \$45,000.
- (6) Mr. Gulati joined the Company in February 2012 and was appointed COO in May 2023. Mr. Gulati's employment agreement provides an annual base salary of \$225,000 and a one-time bonus of \$25,000.

Executive Employment Agreements

Paul Warley

On December 12, 2022, we entered into an CFO employment agreement with Mr. Warley. The CFO employment agreement provides for a term through December 31, 2025, subject to earlier termination by the Company and Mr. Warley as provided in the CFO employment agreement and provides Mr. Warley an annual base salary of \$305,000, which increases to \$350,000 once the Company raises a minimum \$10 million of new capital. Mr. Warley will also be eligible for an annual

incentive bonus of up to 75% of his Base Salary if the agreed bonus targets are achieved and a moving allowance of up to \$30,000 if he relocates his primary residence to Colorado. Additionally, the Company granted Mr. Warley an inducement grant of RSUs for an aggregate of 3,500 shares of Ascent's common stock. 20% of the RSUs are fully vested upon grant. The remaining 80% of the RSUs shall vest in equal monthly increments over the next thirty-six months. Any outstanding and unvested RSUs will accelerate and fully vest upon the earlier of (i) a change of control and (ii) the termination of Mr. Warley's employment for any reason other than (x) by the Company for cause or (y) by Mr. Warley without good reason. Mr. Warley is also eligible to participate in the Company's standard benefit plans and programs.

Under the CFO employment agreement, if the Company terminates Mr. Warley without cause or Mr. Warley terminates his employment for good reason or a change in control, Mr. Warley will be entitled to receive half of his Base Salary amount then in effect during the period from (i) the termination date through (ii) the end of the term of the CFO Employment Agreement. In addition, all RSUs and other equity awards will be immediately vested and settled. The CFO employment agreement also includes customary non-competition and non-solicitation provisions that Mr. Warley must comply with for a period of 12 months after termination of his employment with the Company.

On May 2, 2023, the Company entered into a CEO employment agreement with Mr. Warley. The CEO employment agreement replaces the prior CFO employment agreement with Mr. Warley from December 2022. The CEO employment agreement provides for a term through December 31, 2025, subject to earlier termination by the Company and Mr. Warley as provided in the employment agreement. The CEO employment agreement provides that Mr. Warley will receive an annual base salary ("Base Salary") of \$400,000. In addition, to the Base Salary, the Company will pay Mr. Warley a one-time bonus in the amount of \$100,000. Mr. Warley will also be eligible for an annual incentive bonus of up to 75% of his Base Salary if the agreed bonus targets are achieved. The CEO employment agreement provides that Mr. Warley is eligible to participate in the Company's standard benefit plans and programs.

In connection with Mr. Warley's hiring in December 2022 as the Company's Chief Financial Officer, Mr. Warley received an inducement grant of restricted stock units ("RSUs") for an aggregate of 3,500 shares of Ascent's common stock. Mr. Warley retains such RSUs with the same terms as originally granted.

Under the CEO employment agreement, if the Company terminates Mr. Warley without cause or Mr. Warley terminates his employment for good reason or a change in control, Mr. Warley will be entitled to receive half of his Base Salary amount then in effect during the period from (i) the termination date through (ii) the end of the term of the employment agreement. In addition, all RSUs and other equity awards will be immediately vested and settled.

The CEO employment agreement requires Mr. Warley to maintain the confidentiality of the Company's proprietary information. The employment agreement also includes customary non-competition and non-solicitation provisions that Mr. Warley must comply with for a period of 12 months after termination of his employment with the Company.

Jeff Max

On September 21, 2022, we entered into a three-year employment agreement with Mr. Max. The employment agreement provides that Mr. Max will receive an annual base salary of \$850,000. A \$500,000 portion of the base salary is initially deferred and bears interest at an annual rate of 4%. Once the Company raises a minimum \$10 million of new capital, then (i) the deferred salary and accrued interest thereon will be paid in a lump sum and (ii) the Company will begin paying Mr. Max the full \$850,000 base salary amount. Mr. Max will also be eligible for an annual incentive bonus of up to 100% of his base salary if agreed bonus targets are achieved. The bonus performance objectives may include corporate, business unit or division, financial, strategic, individual or other objectives established with respect to that particular fiscal year by the Company in consultation with Mr. Max. Mr. Max was also granted an inducement grant of RSUs for an aggregate of 6,284 shares of Ascent's common stock. 20% of the RSUs are fully vested upon grant. The remaining 80% of the RSUs shall vest in equal monthly increments over the next thirty-six months. Any outstanding and unvested RSUs will accelerate and fully vest upon the earlier of (i) a change of control and (ii) the termination of Mr. Max's employment for any reason other than (x) by the Company for cause or (y) by Mr. Max without good reason. Additionally, Mr. Max is reimbursed for his Medicare premiums paid and receives a \$4,800 annual car allowance and is eligible to participate in the Company's standard benefit plans and programs.

Under Mr. Max's Employment Agreement, if the Company terminates Mr. Max without cause or Mr. Max terminates his employment for good reason or a change in control, Mr. Max will be entitled to receive (i) 12 months of base salary, (ii) any incentive bonus amounts that have been earned but not yet paid, and (iii) 12 months of continued reimbursement for medical coverage under Medicare. In addition, all RSUs and other equity awards will be immediately vested and settled. The employment agreement also includes customary non-competition, non-solicitation and non-interference provisions that Mr. Max must comply with for a period of 6 months, 12 months and 12 months, respectively, after termination of his employment with the Company.

On April 26, 2023, the Company's board terminated Mr. Max as the Company's CEO.

Victor Lee

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 September 21, 2022, we entered into a separation agreement with Mr. Lee. Under the separation agreement, Mr. Lee is entitled to the following separation benefits: (i) the Company will continue to pay to Mr. Lee his current base salary for the next 12 months; (ii) the Company will pay Mr. Lee's \$200,000 declared but unpaid cash bonus in two installments; and (iii) the Company shall pay COBRA premiums at the Company's current contribution level for the next 12 months. Separation benefits are included in All Other Comp in the Compensation Table.

Jin Jo

On October 19, 2023, the Company entered into a CFO employment agreement with Ms. Jo. The employment agreement provides for a term through December 31, 2025, subject to earlier termination by the Company and the executive as provided in the employment agreements. The employment agreement is effective as of April 17, 2023. The employment agreement provides that Ms. Jo will receive an annual base salary of \$225,000 and a one-time bonus in the amount of \$45,000. Ms. Jo will also be eligible for an annual incentive bonus of up to 60% of Base Salary if the agreed bonus targets are achieved.

Michael J. Gilbreth

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.

On December 11, 2022, we entered into a separation agreement with Mr. Gilbreth. Under the separation agreement Mr. Gilbreth is entitled to the following separation benefits: (a) payment of ten (10) weeks' salary equal to \$35,577, 50% of which is payable on the first payroll period after effective date of the separation agreement, and the remaining 50% of which is payable on the next payroll period; and (b) payment of a bonus, which equals 60% of Mr. Gilbreth's current salary, or \$111,000, one-third (1/3) of which (\$37,000) shall be payable with the December 28, 2022 payroll date, another one-third (1/3) of which (\$37,000) shall be payable beginning the first payroll period after January 31, 2023, and the remaining one-third (1/3) of which (\$37,000) shall be payable on the first payroll period after the filing by the Company of its Annual Report on Form 10-K for the year ending December 31, 2022. Separation benefits are included in All Other Comp in the Compensation Table.

Bobby Gulati

On October 19, 2023, the Company entered into a COO employment agreement with Mr. Gulati. The employment agreement provides for a term through December 31, 2025, subject to earlier termination by the Company and the executive as provided in the employment agreements. The employment agreement is effective as of April 17, 2023. The employment agreement provides that Mr. Gulati will receive an annual base salary of \$225,000 and a one-time bonus in the amount of \$25,000. Mr. Gulati will also be eligible for an annual incentive bonus of up to 60% of Base Salary if the agreed bonus targets are achieved.

The following table sets forth information concerning the outstanding equity awards granted to the named executive officer as of December 31, 2023.

Outstanding Equity Awards at Fiscal Year-End 2023

Name	Option Awards				Stock Awards	
	Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	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 (\$)
Paul Warley (1)	-	-	-	-	1,867	1,625
Jeffrey Max (2)	-	-	-	-	-	-
Jin Jo	-	-	-	-	-	-
Bobby Gulati	-	-	-	-	-	-

- (1) In December 2022, Mr. Warley was granted an inducement grant of for an aggregate of 3,500 shares of Ascent's common stock. 20% of the RSUs are fully vested upon grant. The remaining 80% of the RSUs vests in equal monthly increments over the next thirty-six months.
- (2) In September 2022, Mr. Max was granted an inducement grant of RSUs for an aggregate of 6,284 shares of Ascent's common stock. 20% of the RSUs are fully vested upon grant. The remaining 80% of the RSUs vests in equal monthly increments over the next thirty-six months. Mr. Max's remaining nonvested RSUs were forfeited upon termination.

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

Security Ownership of Certain Beneficial Owners and Management

The following table shows information regarding the beneficial ownership of our common stock by our current directors, our Named Executive Officers, and our greater than 5% beneficial owners as of February 21, 2024.

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 units within 60 days of February 21, 2024 (or April 16, 2024). For purposes of calculating the percentage of our common stock beneficially owned, the number of shares of our common stock includes 3,793,843 shares of our common stock outstanding as of February 21, 2024.

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
Named Executive Officers and Directors:		
Paul Warley (1)	108,333	2.86 %
Jin Jo (2)	14,167	*
Bobby Gulati (3)	14,167	*
Forrest Reynolds (4)	66,576	1.75 %
Louis Berezovsky (5)	25,694	*
Gregory Thompson (6)	25,694	*
David Peterson (7)	22,152	*
All current directors and executive officers as a group (7 persons)	276,783	7.30 %

* Less than 1.0%

(1) Mr. Warley's shares include 73,611 RSUs that have vested or will vest within 60 days.

(2) Ms. Jo's shares include 14,167 RSUs that will vest within 60 days.

(3) Mr. Gulati's shares include 14,167 RSUs that will vest within 60 days.

(4) Mr. Reynolds's shares include 8,333 RSUs that will vest within 60 days.

(5) Mr. Berezovsky's shares include 8,333 RSUs that will vest within 60 days.

(6) Mr. Thompson's shares include 8,333 RSUs that will vest within 60 days.

(7) Mr. Peterson's shares include 10,000 RSUs that will vest within 60 days.

Securities Authorized for Issuance under Equity Compensation Plans

The following table sets forth information as of December 31, 2023 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	-	N/A	525,000

The executive equity grants made to Mr. Max and Mr. Warley in 2022 were made outside of a stockholder approved plan, in reliance upon the "inducement grant" exception provided for in the Nasdaq listing rules.

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

Relationship with Crowdex and TubeSolar

During 2023, Crowdex Investment, LLC ("Crowdex") and TubeSolar beneficially owned more than 5% of the Company were both directly and indirectly beneficially owned and controlled by Bernd Förtlisch.

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 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 2,725 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 600 shares of common stock upon the conversion by TubeSolar of 60 shares of Series 1A Preferred Stock. On September 3, 2021, we issued TubeSolar 400 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 13,000 shares of common stock;
- TubeSolar converted their remaining 2,400 shares of Series 1A Preferred Stock into 24,000 shares of common stock.

Relationship with BD1

During 2023, BD 1 Investment Holding, LLC (“BD1”) beneficially owned more than 5% of the Company. 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 67 shares of our common stock at a fixed price of \$15,000 (as adjusted for the reverse stock split) per share in two tranches of 333 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 79,000 shares of common stock.

Johannes Kuhn is the indirect beneficial owner of BD1.

Flisom AG Asset Acquisition

Asset Purchase Agreement

On April 17, 2023, we entered into an Asset Purchase Agreement (the “Asset Purchase Agreement”) with Flisom AG, a leading developer and manufacturer of photovoltaic thin film solar cells (“Seller”), pursuant to which, among other things, the Company purchased certain assets relating to thin-film photovoltaic manufacture and production from Seller (collectively, the “Assets”), including (i) certain manufacturing equipment located at Seller’s Niederhasli, Switzerland facility (the “Manufacturing Facility”) and (ii) related inventory and raw materials at the Manufacturing Facility (collectively, the “Transaction”). In connection with the Transaction, the Company also received a license to certain intellectual property rights used in the operation of the Assets and will also acquire, by operation of Swiss law, the employment contracts of certain employees of Seller in Switzerland who are functionally predominantly working with the Assets, subject to such employees being offered the right to remain employed by Seller after the closing of the Transaction (the “Closing”). The total consideration paid by the Company to Seller in connection with the Transaction was an aggregate amount in cash equal to \$2,800,000.

Ancillary Agreements

At the Closing, the Company and Seller also entered into (i) a Transition Services Agreement requiring that Seller provide transition support for the Company’s operation of the Assets, with fees to be due and payable by the Company for performance of such support services, (ii) a Sublease Agreement related to the Company’s use of the premises at the Manufacturing Facility where the Assets are located (the “Sublease Agreement”), and (iii) a Technology License Agreement, pursuant to which Seller granted the Company a revocable, non-exclusive license to certain intellectual property rights of the Seller used in the operation of the Assets (the “Licensed IP”), subject to certain encumbrances on the Licensed IP in favor of Seller’s lender.

The Company and Seller also intend to enter into, as promptly as practicable following the Closing, a Subcontractor Agreement (the “Subcontractor Agreement”), pursuant to which the Company will agree to manufacture the photovoltaic cells necessary to fulfill certain outstanding supply agreement obligations between the Seller and one of its significant customers, in exchange for the Company receiving the incoming proceeds from the fulfillment of the supply arrangement.

Letter Agreement

On April 20, 2023, the Company entered into a letter agreement (the “Letter Agreement”) with FL1 Holding GmbH, a German company (“FL1”), BD1 and certain of their affiliated entities (collectively, the “Affiliates”). FL1 is controlled by Johannes Kuhn. Mr. Kuhn also controls BD1, one of the Company’s largest stockholders.

In connection with the prospective acquisition by FL1 of substantially all shares in Seller, FL1 and one or more of the Affiliates agreed, on behalf of itself and its affiliates (i) to certain noncompetition and nonsolicitation obligations with respect to the Company and the Assets, including certain prospective customers of the products produced using the Assets, for a period of five (5) years from the Closing, subject to certain exceptions, (ii) to cause Seller to use certain of its intellectual property rights for limited internal purposes until such time as a joint collaboration agreement is entered into after the Closing among Seller, the Company and certain other affiliates of FL1 related to the licensing and use of such intellectual property, and otherwise not to dispose of or fail to maintain such intellectual property, (iii) to reimburse the Company for certain pre-Closing liabilities of Seller to the extent incurred by the Company following the closing of the Transaction; and (iv) to indemnify the Company for breaches of certain representations, warranties and covenants relating to the Assets.

Pursuant to the Letter Agreement, BD1 and its parent company agreed that (1) it and its affiliates will not offer to acquire or acquire, by merger, tender offer or otherwise, all or substantially all of the outstanding shares of capital stock of the Company not beneficially owned by BD and its affiliates, without the approval of a committee comprised of disinterested and independent members of the Company’s Board of Directors and the affirmative vote of a majority of the voting power of outstanding shares of the Company not beneficially owned by BD and its affiliates; (2) BD and its affiliates will not transfer any shares of the Company’s capital stock beneficially owned by them unless the transferee agrees in writing to be bound by the foregoing restriction; and (3) each of them will stand behind the obligations of FL1 pursuant to the Letter Agreement.

The Letter Agreement also grants the Company the option, but not the obligation, (i) to purchase certain intellectual property rights of Seller relating to thin-film photovoltaic manufacture and production for \$2,000,000 following the release of certain liens on such intellectual property rights in favor of Seller's lender, and (ii) for a period of 12 months following the Closing, to resell the Assets to FL1 for an aggregate amount equal to \$5,000,000, with such transaction to close within 90 days following the exercise of the Company's resale right. On June 16, 2023, the Company exercised its option to resell the Assets to FL1.

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 four directors are independent directors, as defined under the applicable rules of the Nasdaq Capital Market listing standards. The independent directors are Messrs. Berezovsky, Thompson and Reynolds.

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, 2023 and 2022 were as follows:

	2023	2022
Audit fees	\$ 160,500	\$ 155,500
Audit related fees	25,000	40,500
Total audit and audit related fees	185,500	196,000
All other fees	-	-
Total Fees	\$ 185,500	\$ 196,000

Audit fees for Haynie & Company for fiscal year 2023 and 2022 represents aggregate fees for the 2023 and 2022 annual audit and quarterly reviews of the financial statements. Audit-related services consisted primarily of 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	<u>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))</u>
3.2	<u>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)</u>
3.3	<u>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)</u>
3.4	<u>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)</u>
3.5	<u>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)</u>
3.6	<u>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)</u>
3.7	<u>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)</u>
3.8	<u>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)</u>
3.9	<u>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)</u>
3.10	<u>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)</u>
3.11	<u>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)</u>
3.12	<u>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)</u>
3.13	<u>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)</u>
3.14	<u>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)</u>
3.15	<u>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)</u>
3.16	<u>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)</u>
3.17	<u>Form of Series 1B Preferred Stock Certificate of Designation (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed on June 30, 2023)</u>
3.18	<u>Amendment to the Series 1B Preferred Stock Certificate of Designation dated July 25, 2023 (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed on July 31, 2023)</u>
3.19	<u>Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated September 8, 2023 (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed on September 15, 2023)</u>
4.1	<u>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))</u>
4.2	<u>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))</u>

- 4.3 [Description of Securities \(incorporated by reference to Exhibit 4.3 to our Annual Report on Form 10-K filed May 13, 2022\)](#)
- 4.4 [Form of Common Warrant \(incorporated by reference to Exhibit 4.4 filed with Amendment No. 3 to the Company's Registration on Form S-1 \(File no. 333-274231\)\)](#)
- 4.5 [Form of Prefunded Warrant \(incorporated by reference to Exhibit 4.6 filed with Amendment No. 3 to the Company's Registration on Form S-1 \(File no. 333-274231\)\)](#)
- 4.6 [Form of Placement Agent Warrant \(incorporated by reference to Exhibit 4.5 filed with Amendment No. 3 to the Company's Registration on Form S-1 \(File no. 333-274231\)\)](#)
- 4.7 [Form of Common Warrant Agency Agreement \(incorporated by reference to Exhibit 4.7 filed with Amendment No. 3 to the Company's Registration on Form S-1 \(File no. 333-274231\)\)](#)
- 4.8 [Form of Prefunded Warrant Agency Agreement \(incorporated by reference to Exhibit 4.8 filed with Amendment No. 3 to the Company's Registration on Form S-1 \(File no. 333-274231\)\)](#)
- 4.9 [Form of Securities Purchase Agreement \(incorporated by reference to Exhibit 4.9 filed with Amendment No. 3 to the Company's Registration on Form S-1 \(File no. 333-274231\)\)](#)
- 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 \(incorporated by reference to Exhibit 10.13 to our Quarterly Report on Form 10-Q for the quarter ended March 31, 2022\)](#)
- 10.14 [Nanyang Unsecured Convertible Promissory Note dated January 21, 2022 \(incorporated by reference to Exhibit 10.14 to our Quarterly Report on Form 10-Q for the quarter ended March 31, 2022\)](#)
- 10.15 [Bridge Promissory Note dated August 3, 2022 \(incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on August 8, 2022\)](#)
- 10.16 [Securities Purchase Agreement dated August 8, 2022 \(incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on August 8, 2022\)](#)
- 10.17 [Form of Common Stock Warrant Related to Securities Purchase Agreement dated August 8, 2022 \(incorporated by reference to Exhibit 10.3 to our Current Report on Form 8-K filed on August 8, 2022\)](#)
- 10.18 [Common Stock Warrant dated August 19, 2022 \(incorporated by reference to Exhibit 10.3 to our Current Report on Form 8-K filed on August 19, 2022\)](#)
- 10.19† [Separation Agreement and Release of Claims between the Company and Victor Lee dated September 21, 2022 \(incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on September 22, 2022\)](#)

10.20†	<u>Employment Agreement between the Company and Jeffrey Max dated September 21, 2022 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on September 27, 2022)</u>
10.21†	<u>Separation Agreement between the Company and Michael Gilbreth effective December 11, 2022 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on December 12, 2022)</u>
10.22†	<u>Employment Agreement between the Company and Paul Warley dated December 12, 2022 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on December 12, 2022)</u>
10.23	<u>Securities Purchase Contract, dated as of December 19, 2022 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on December 20, 2022)</u>
10.24	<u>Form of Security Agreement, dated as of December 19, 2022 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on December 20, 2022)</u>
10.25	<u>Form of Registered Advance Note 2022 (incorporated by reference to Exhibit 4.1 to our Current Report on Form 8-K filed on December 20, 2022)</u>
10.26	<u>Form of Private Placement Advance Note (incorporated by reference to Exhibit 4.2 to our Current Report on Form 8-K filed on December 20, 2022)</u>
10.27	<u>Form of Warrant Note (incorporated by reference to Exhibit 4.3 to our Current Report on Form 8-K filed on December 20, 2022)</u>
10.28	<u>Waiver and Amendment Agreement, dated as of March 29, 2023 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on March 29, 2023)</u>
10.29	<u>Amendment to Waiver and Amendment Agreement (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on April 13, 2023)</u>
10.30	<u>Common Stock Securities Purchase Agreement dated April 14, 2023 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on April 20, 2023)</u>
10.31	<u>Asset Purchase Agreement, dated as of April 17, 2023 (incorporated by reference to Exhibit 2.1 to our Current Report on Form 8-K filed on April 21, 2023)</u>
10.32	<u>Transition Services Agreement, dated as of April 17, 2023 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on April 21, 2023)</u>
10.33	<u>Sublease Agreement, dated as of April 17, 2023 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on April 21, 2023)</u>
10.34	<u>Technology License Agreement, dated as of April 17, 2023 (incorporated by reference to Exhibit 10.3 to our Current Report on Form 8-K filed on April 21, 2023)</u>
10.35	<u>Letter Agreement, dated as of April 20, 2023 (incorporated by reference to Exhibit 10.4 to our Current Report on Form 8-K filed on April 21, 2023)</u>
10.36†	<u>CEO Employment Agreement between the Company and Paul Warley dated as of May 1, 2023</u>
10.37	<u>Waiver and Amendment Agreement, dated as of May 25, 2023 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on May 26, 2023)</u>
10.38	<u>Form of Series 1B Preferred Stock Purchase Agreement dated June 29, 2023 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on June 30, 2023)</u>
10.39	<u>Placement Agent Agreement (incorporated by reference to Exhibit 1.1 filed with Amendment No. 3 to the Company's Registration on Form S-1 (File no. 333-274231))</u>
10.40†	<u>Employment Agreement between the Company and Bobby Gulati dated as of October 19, 2023 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on October 23, 2023)</u>
10.41†	<u>Employment Agreement between the Company and Jin Jo dated as of October 19, 2023 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on October 23, 2023)</u>
10.42†	<u>Ascent Solar 2023 Equity Incentive Plan (incorporated by reference to Annex A of our definitive proxy statement dated October 23, 2023)</u>
23.1*	<u>Consent of Haynie & Company</u>
31.1*	<u>Chief Executive Officer Certification pursuant to section 302 of the Sarbanes-Oxley Act of 2002</u>
31.2*	<u>Chief Financial Officer Certification pursuant to section 302 of the Sarbanes-Oxley Act of 2002</u>
32.1*	<u>Chief Executive Officer Certification pursuant to section 906 of the Sarbanes-Oxley Act of 2002</u>
32.2*	<u>Chief Financial Officer Certification pursuant to section 906 of the Sarbanes-Oxley Act of 2002</u>
97*	<u>Ascent Solar Technologies, Inc. Rule 10D-1 Clawback Policy</u>
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 with Embedded Linkbase Documents
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 21st day of February, 2024.

ASCENT SOLAR TECHNOLOGIES, INC.

By: /S/ PAUL WARLEY
Paul Warley
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
<u>/S/ PAUL WARLEY</u> Paul Warley	President & Chief Executive Officer, Director (Principal Executive Officer)	February 21, 2024
<u>/S/ JIN JO</u> Jin Jo	Chief Financial Officer (Principal Financial and Accounting Officer)	February 21, 2024
<u>/S/ DAVID PETERSON</u> David Peterson	Chairman of the Board of Directors	February 21, 2024
<u>/S/ LOUIS BEREZOVSKY</u> Louis Berezovsky	Director	February 21, 2024
<u>/S/ GREGORY THOMPSON</u> Gregory Thompson	Director	February 21, 2024
<u>/S/ FORREST REYNOLDS</u> Forrest Reynolds	Director	February 21, 2024

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 balance sheets of Ascent Solar Technologies, Inc.(the Company) as of December 31, 2023 and 2022, and the related statements of operations and comprehensive income, stockholders' equity (deficit), and cash flows for each of the years in the two-year period ended December 31, 2023, 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, 2023 and 2022, and the results of its operations and its cash flows for each of the years in the two-year period ended December 31, 2023, 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 financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 3 to the financial statements, the Company has had limited production which has led to the Company having a working capital deficit resulting in the Company being dependent on outside financing to fund its operations. There is no assurance that the Company will be able to raise additional capital and cash on hand is not sufficient to sustain operations. These factors raise substantial doubt about its ability to continue as a going concern. Management's plans in regard to these matters are also described in Note 3. The financial statements do not include any adjustments that might result from the outcome of this uncertainty.

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 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 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.

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

Description of the Matter:

The Company's financing transactions include common stock and warrant issuances that require proper accounting for proceeds and transaction costs which include fair value estimates. Additionally, adjustments to note and warrant terms resulted in deemed dividends for the down round provision, which is based on a fair value estimate. The financing transactions are discussed in Note 10 and Note 14 to the financial statements.

How We Addressed the Matter in Our Audit:

Our audit procedures related to the following:

- Inspected and reviewed debt agreements, warrant agreements, conversion notices, and settlement agreements to evaluate the Company's accounting classification for these transactions, including assessing and evaluating management's application of relevant accounting standards to such transactions.
- We evaluated the reasonableness and appropriateness of the choice of valuation model used for each specific transaction.
- We tested the reasonableness of the assumptions used by the Company in the Black Scholes models, including exercise price, term, expected volatility, and risk-free interest rate.
- We tested the accuracy and completeness of data used by the Company in developing the assumptions used in the valuation models.
- We evaluated the accuracy and completeness of the Company's presentation of these instruments in the financial statements and related disclosures in Note 10, and 14, including evaluating whether such disclosures were in accordance with relevant accounting standards.

Impairment of Assets Acquired

Description of the Matter:

As discussed in Notes 2, and 5 to financial statements, the Company acquired manufacturing assets and inventory located in Switzerland, during the year-ended December 31, 2023, in an effort to expand operations. At year-end, operations had deteriorated to a point where management determined it necessary to perform an evaluation of these assets for impairment, concluding that certain assets were impaired. The Company recognized a \$3.3 million impairment charge, which is the amount by which the carrying value exceeded the estimated fair value of these assets. The Company entered into a letter agreement with a former affiliate of the Company that, among other things, granted the Company the option to resell the acquired assets to the former affiliate for \$5 million. The Company exercised its option to resell the assets but has not received payment on this option and, due to deteriorating conditions with this affiliate, payment is uncertain.

How We Addressed the Matter in Our Audit:

Auditing the Company's impairment measurement involved a high degree of judgment as estimates underlying the determination of fair value of the long-lived assets were based on assumptions affected by current market and economic conditions. To determine the fair value of the long-lived asset group, the Company utilized a cost and market approach, measuring fair value on the standalone basis value premise. Management used these data inputs to perform an undiscounted cash flow analysis.

Our audit procedures related to the following:

- Testing managements process for developing the fair value estimate.
- Evaluating the appropriateness of the discounted cash flow model used by management.
- Testing the completeness and accuracy of underlying data used in the fair value estimate.

/s/ Haynie & Company

Haynie & Company
Salt Lake City, Utah
February 21, 2024

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

ASCENT SOLAR TECHNOLOGIES, INC.
BALANCE SHEETS

	December 31, 2023	December 31, 2022
ASSETS		
Current Assets:		
Cash and cash equivalents	\$ 1,048,733	\$ 11,483,018
Trade receivables, net of allowance of \$0 and \$26,000, respectively	-	1,769
Inventories	447,496	615,283
Prepaid and other current assets	39,279	344,110
Total current assets	1,535,508	12,444,180
Property, Plant and Equipment:		
Accumulated depreciation	21,177,892	22,590,169
	(20,131,008)	(22,038,508)
	1,046,884	551,661
Other Assets:		
Operating lease right-of-use assets, net	2,364,672	4,324,514
Patents, net of accumulated amortization of \$173,387 and \$154,218, respectively	53,978	79,983
Equity method investment	68,867	61,379
Other non-current assets	1,228,797	1,214,985
	3,716,314	5,680,861
Total Assets	6,298,706	18,676,702
LIABILITIES AND STOCKHOLDERS' EQUITY (DEFICIT)		
Current Liabilities:		
Accounts payable	\$ 579,237	\$ 595,157
Related party payables	4,231	67,164
Accrued expenses	1,354,159	888,869
Accrued payroll	160,477	490,185
Severance payable	-	437,079
Accrued professional services fees	849,282	952,573
Accrued interest	628,145	559,060
Current portion of operating lease liability	491,440	733,572
Conversions payable (Note 10)	1,089,160	-
Current portion of convertible notes, net	354,936	-
Other payable	250,000	250,000
Total current liabilities	5,761,067	4,973,659
Long-Term Liabilities:		
Non-current operating lease liabilities	2,043,025	3,827,878
Non-current convertible notes, net	-	5,268,399
Accrued warranty liability	21,225	21,225
Total liabilities	7,825,317	14,091,161
Commitments and contingencies (Note 17)		
Stockholders' Equity (Deficit):		
Series A preferred stock, \$.0001 par value; 750,000 shares authorized; 48,100 and 48,100 shares issued and outstanding, respectively (\$899,069 and \$850,301 Liquidation Preference, respectively)	5	5
Common stock, \$.0001 par value, 500,000,000 authorized; 3,583,846 and 259,323 shares issued and outstanding, respectively	358	26
Additional paid in capital	480,942,526	452,139,027
Accumulated deficit	(482,478,436)	(447,537,493)
Accumulated other comprehensive loss	8,936	(16,024)
Total stockholders' equity (deficit)	(1,526,611)	4,585,541
Total Liabilities and Stockholders' Equity (Deficit)	\$ 6,298,706	\$ 18,676,702

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

ASCENT SOLAR TECHNOLOGIES, INC.
STATEMENTS OF OPERATIONS AND COMPREHENSIVE INCOME

	For the Years Ended December 31,	
	2023	2022
Revenues		
Products	\$ 397,886	\$ 694,286
Milestone and engineering	60,374	528,500
Total Revenues	<u>458,260</u>	<u>1,222,786</u>
Costs and Expenses		
Costs of revenue	1,892,341	2,011,459
Research, development and manufacturing operations	3,222,283	5,975,921
Selling, general and administrative	5,364,523	4,736,562
Share-based compensation	2,243,445	5,478,734
Depreciation and amortization	95,238	75,645
Impairment loss	3,283,715	-
Total Costs and Expenses	<u>16,101,545</u>	<u>18,278,321</u>
Loss from Operations	<u>(15,643,285)</u>	<u>(17,055,535)</u>
Other Income/(Expense)		
Other income/(expense), net	747,739	33,100
Interest expense	(2,174,118)	(2,704,909)
Total Other Income/(Expense)	<u>(1,426,379)</u>	<u>(2,671,809)</u>
Income/(Loss) on Equity Method Investment	<u>(232)</u>	<u>(27,361)</u>
Net Income/(Loss)	<u>\$ (17,069,896)</u>	<u>\$ (19,754,705)</u>
Less: Down round deemed dividend	(17,980,678)	-
Net Income Available to Common Shareholders	<u>\$ (35,050,574)</u>	<u>\$ (17,069,896)</u>
Net Income/(Loss) Per Share (Basic and Diluted)	<u>\$ (34.19)</u>	<u>\$ (132.00)</u>
Weighted Average Common Shares Outstanding (Basic and Diluted)	<u>1,025,097</u>	<u>149,016</u>
Other Comprehensive Income/(Loss)		
Foreign currency translation gain/(loss)	24,960	(16,024)
Net Comprehensive Income/(Loss)	<u>\$ (17,044,936)</u>	<u>\$ (19,770,729)</u>

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

ASCENT SOLAR TECHNOLOGIES, INC.
STATEMENT OF STOCKHOLDERS' EQUITY (DEFICIT)
For the year ended December 31, 2023

	Series A Preferred Stock		Series 1B Preferred Stock		Common Stock		Additional Paid-In Capital	Accumulate d Deficit	Other Accumulate d Comprehens ive Loss	Total Stockholders' Equity (Deficit)
	Shares	Amount	Shares	Amount	Shares	Amount				
Balance at December 31, 2022	48,100	\$ 5	-	\$ -	259,323	\$ 26	\$ 452,139.027	\$ (447,537.493)	\$ (16,024)	4,585,541
Impact of adopting ASU 2020-06	-	-	-	-	-	-	(3,795.874)	109,631	-	(3,686,243)
Balance at December 31, 2022	48,100	\$ 5	-	\$ -	259,323	\$ 26	\$ 448,343.153	\$ (447,427.862)	\$ (16,024)	899,298
Conversion of L1 Note and Conversions Payable into Common Stock	-	-	-	-	328,502	33	806,769	-	-	806,802
Conversion of Sabby Note into Common Stock	-	-	-	-	137,072	13	2,275,585	-	-	2,275,598
Share-based compensation	-	-	-	-	-	-	2,243,445	-	-	2,243,445
Common stock issued for services	-	-	-	-	1,425	-	92,750	-	-	92,750
Proceeds from issuance of Series 1B Preferred Stock	-	-	900	-	-	-	900,000	-	-	900,000
Series 1B Preferred Stock issuance cost	-	-	-	-	-	-	(20,000)	-	-	(20,000)
Down round deemed dividend	-	-	-	-	-	-	17,980.678	(17,980.678)	-	-
Proceeds from public offering:										
Common										
Stock (10/2 @ \$1.58)	-	-	-	-	389,024	39	616,475	-	-	616,514
Prefunded warrants (10/2 @ \$1.58)	-	-	-	-	-	-	5,044,977	-	-	5,044,977
Warrants (10/2 @ \$1.30)	-	-	-	-	-	-	4,627,737	-	-	4,627,737
Public offering costs	-	-	-	-	-	-	(1,068.796)	-	-	(1,068,796)
Repayment of Series 1B Preferred Stock	-	-	(900)	-	-	-	(900,000)	-	-	(900,000)
Conversion of prefunded warrants	-	-	-	-	2,468,500	247	(247)	-	-	-
Net Loss	-	-	-	-	-	-	-	(17,069.896)	-	(17,069,896)
Foreign Currency Translation Loss	-	-	-	-	-	-	-	-	24,960	24,960
Balance at December 31, 2023	48,100	\$ 5	-	\$ -	3,583,846	\$ 358	\$ 480,942.526	\$ (482,478.436)	\$ 8,936	\$ (1,526,611)

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

ASCENT SOLAR TECHNOLOGIES, INC.
STATEMENT OF STOCKHOLDERS' EQUITY (DEFICIT)
For the year ended December 31, 2022

	Series A Preferred Stock		Series 1A Preferred Stock		Common Stock		Additional Paid-In Capital	Accumulat ed Deficit	Other Accumulat ed Comprehe nsive Loss	Total Stockholde rs' Equity (Deficit)
	Shares	Amount	Shares	Amount	Shares	Amount				
Balance at January 1, 2022	48,100	\$ 5	3,700	\$ -	113,256	\$ 12	\$ 9,165	\$ (427,78)	\$ -	\$ (2,833,606)
Conversion of TubeSolar Series 1A Preferred Stock into Common Stock	-	-	(2,400)	-	24,000	2	(2)	-	-	-
Conversion of Crowdex Series 1A Preferred Stock into Common Stock	-	-	(1,300)	-	13,000	1	(1)	-	-	-
Conversion of Global Ichiban Note into Common Shares	-	-	-	-	79,000	8	7,899,992	-	-	7,900,000
Conversion of Nanyang Note into Common Stock	-	-	-	-	15,000	2	1,499,998	-	-	1,500,000
Conversion of Fleur Note into Common Stock	-	-	-	-	10,000	1	999,999	-	-	1,000,000
Conversion of Sabby Note into Common Stock	-	-	-	-	350	-	107,101	-	-	107,101
Private placement warrants	-	-	-	-	-	-	2,990,029	-	-	2,990,029
Beneficial conversion feature	-	-	-	-	-	-	4,490,029	-	-	4,490,029
Proceeds from private placement:										
Common stock (8/19 @ \$540)	-	-	-	-	4,717	-	2,551,405	-	-	2,551,405
Warrants (8/19 @ \$346)	-	-	-	-	-	-	2,448,595	-	-	2,448,595
Private placement costs	-	-	-	-	-	-	(1,276,017)	-	-	(1,276,017)
Share-based compensation	-	-	-	-	-	-	5,478,734	-	-	5,478,734
Net Loss	-	-	-	-	-	-	-	(19,754,705)	-	(19,754,705)
Foreign Currency Translation Gain/(Loss)	-	-	-	-	-	-	-	-	(16,024)	(16,024)
Balance at December 31, 2022	48,100	\$ 5	-	\$ -	259,323	\$ 26	\$ 9,027	\$ (447,537,493)	\$ (16,024)	\$ 4,585,541

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

ASCENT SOLAR TECHNOLOGIES, INC.
STATEMENTS OF CASH FLOWS

	For the Years Ended December 31,	
	2023	2022
Operating Activities:		
Net income/(loss)	\$ (17,069,896)	\$ (19,754,705)
Adjustments to reconcile net loss to cash used in operating activities:		
Depreciation and amortization	95,238	75,645
Share-based compensation	2,243,445	5,478,734
Services paid in common stock	92,750	—
Gain on lease modification	(84,678)	—
Loss on disposal of assets	77,210	—
Operating lease asset amortization	667,526	694,229
Loss on equity method investment	232	27,361
Patent write off	26,419	—
Impairment loss	3,283,715	—
Amortization of debt discount	1,809,566	2,609,389
Inventory write off and reserve expense	114,301	—
Other	—	4,497
Changes in operating assets and liabilities:		
Accounts receivable	1,769	47,481
Inventories	(124,760)	(23,111)
Prepaid expenses and other current assets	192,273	(686,359)
Accounts payable	(15,920)	(47,008)
Related party payable	(62,933)	22,164
Operating lease liabilities	(649,991)	(656,334)
Accrued interest	69,085	83,389
Accrued expenses	(202,230)	1,618,053
Net cash (used in) operating activities	(9,536,879)	(10,506,575)
Investing Activities:		
Purchase of property, plant and equipment	(3,857,783)	(169,357)
Contributions to equity method investment	—	(83,559)
Patent activity costs	(19,583)	(12,556)
Net cash provided by (used in) investing activities	(3,877,366)	(265,472)
Financing Activities:		
Proceeds from issuance of convertible debt and warrants	—	13,500,000
Proceeds from issuance of stock and warrants	10,289,228	5,000,000
Proceeds from issuance of Series 1B Preferred Stock	900,000	—
Payment of convertible debt and conversions payable	(6,237,712)	—
Payment of Series 1B Preferred Stock	(900,000)	—
Financing issuance costs	(1,088,796)	(2,206,695)
Net cash provided by (used in) financing activities	2,962,720	16,293,305
Effect of foreign exchange rate on cash	17,240	—
Net change in cash and cash equivalents	(10,434,285)	5,521,258
Cash and cash equivalents at beginning of period	11,483,018	5,961,760
Cash and cash equivalents at end of period	\$ 1,048,733	\$ 11,483,018
Supplemental Cash Flow Information:		
Cash paid for interest	\$ 293,842	\$ —
Non-Cash Transactions:		
Conversions of preferred stock, convertible notes, and conversions payable to equity	\$ 3,082,400	\$ 10,507,101
Series 1A preferred stock conversion	\$ —	\$ 740
Operating lease assets obtained in exchange for operating lease liabilities	\$ —	\$ 53,193
Purchase and return of equipment purchased on credit	\$ (202,558)	\$ 159,119
Conversion of bridge loan into common stock and warrants	\$ —	\$ 1,000,000
Conversion of prefunded warrants	\$ 247	\$ —
Down round deemed dividend	\$ 17,980,678	\$ —

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

ASCENT SOLAR TECHNOLOGIES, INC.

NOTES TO FINANCIAL STATEMENTS

NOTE 1. ORGANIZATION

Ascent Solar Technologies, Inc. ("Ascent" or the "Company") 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.

The Company focus is on integrating its PV products into scalable and high value markets such as agrivoltaics, 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 March 13, 2023, the Company redeployed its Thornton manufacturing facility as a Perovskite Center of Excellence and dedicated the facility to the industrial commercialization of the Company's patent-pending Perovskite solar technologies. On April 18, 2023, the Company completed its acquisition of the manufacturing assets of Flisom AG ("Flisom"), a Zurich based thin-film solar manufacturer and on June 16, 2023, exercised a put option to sell the assets (see Note 5). The Company has restarted production at its Thornton facility.

On September 11, 2023, the Company effected a reverse stock split of the Company's common stock at a ratio of one-for-two hundred (the "Reverse Stock Split"). The Company's common stock began trading on a split-adjusted basis on September 12, 2023. 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 financial statements and accompanying notes have been retroactively adjusted to give effect to the Reverse Stock Split.

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. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Use of Estimates: 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.

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, 2023, and 2022, the Company had inventory reserve balances of \$105,915 and \$338,348, 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, 2023, and 2022, the Company had net patent costs of \$53,978 and \$79,983, respectively. Of these amounts \$6,678 and \$25,847 represent costs net of amortization incurred for awarded patents, and the remaining \$47,300 and \$54,136 represents costs incurred for patent in process applications as of December 31, 2023 and 2022, respectively. During the years ended December 31, 2023 and 2022, the Company capitalized \$19,583 and \$12,556 in patent costs, respectively, as it worked to secure design rights and trademarks for newly developed products. Amortization expense was \$19,169 and \$19,168 for the years ended December 31, 2023 and 2022, respectively.

As of December 31, 2023, future amortization of patents is expected as follows:

2024	\$	6,493
2025		185
	\$	<u>6,678</u>

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, 2023 and 2022, the Company recognized an impairment charge of \$3,283,715 and \$0, respectively. See Note 5 for further discussion on the impairment charge.

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.

Other Assets: Other assets is comprised of the following:

	As of December 31,	
	2023	2022
Lease security deposit	\$ 625,000	\$ 625,000
Spare machine parts	603,797	589,985
Total Other Assets	<u>\$ 1,228,797</u>	<u>\$ 1,214,985</u>

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

Convertible Notes: The Company issues, from time to time, convertible notes. Refer to Note 10 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 11 and 12 for further discussion on the classification of each instrument.

Product Warranties: The Company provides a limited warranty to the original purchaser of products against defective materials and workmanship. Warranty accruals are recorded at the time of sale and are estimated based upon product warranty terms and historical experience. 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. The Company recognizes 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, the Company allocates 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, 2023 and 2022, the Company recognized product revenue of \$397,886 and \$694,286, respectively. For the year ended December 31, 2023, one customer from Switzerland represented 74% of total product revenue and one domestic customer presented 23% of the Company's total product revenue. For the year ended December 31, 2022, one customer represented 82% of the Company's total product revenue.

Milestone and engineering revenue. Each milestone and engineering 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, costs or engineering targets. During the years ended December 31, 2023 and 2022, the Company recognized total milestone revenue of \$60,374 and \$528,500.

Government contracts revenue. Revenue from government research and development contracts is generated under terms that include cost plus fee, cost share, or firm fixed price. The Company generally recognizes 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 the Company's performance obligations are excluded from our input methods of revenue recognition as the amounts are not reflective of 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 for the anticipated loss on the contract.

No government contract revenue was recognized for the years ended December 31, 2023 and 2022.

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 it is 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, 2023 and 2022, the Company had an accounts receivable, net balance of \$0 and \$1,769, respectively. As of December 31, 2023 and 2022, the Company had an allowance for doubtful accounts of \$0 and \$26,000, respectively.

The payment terms and conditions in customer contracts vary. Customers required to prepay are represented by deferred revenues, included in Accrued Liabilities on the 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, 2022	\$	22,500
Additions		229,813
Recognized as revenue		(239,313)
Balance as of December 31, 2022		13,000
Additions		31,220
Recognized as revenue		(43,285)
Balance as of December 31, 2023	\$	935

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 Statements of Operations. Customer payments of shipping and handling costs are recorded as a component of Revenues.

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 at grant date. The value of the portion of the award that is ultimately expected to vest, net of estimated forfeitures, is recognized as expense on a straight-line basis, over the requisite service period in the Company's Statements of Operations. Forfeitures are estimated at the time of grant and revised, as necessary, in subsequent periods if actual forfeitures differ from those estimates.

Research, Development and Manufacturing Operations Costs: Research, development and manufacturing operations expenses were \$3,222,283 and \$5,975,921 for the years ended December 31, 2023 and 2022, 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: Marketing and advertising costs are expensed as incurred. Marketing and advertising expenses were \$93,474 and \$7,605 for the years ended December 31, 2023 and 2022, respectively.

Other Income (Expense): For the year ended December 31, 2023, Other income (expense) includes the receipt of the employee retention tax credit of \$769,983, net of related expenses.

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 income tax (benefit) / expense.

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 (2020-2023) 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 includes dividends on cumulative preferred stock (whether or not earned). 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 dilutive common shares outstanding (which consist primarily of warrants and convertible securities using the treasury stock method or the if-converted method, as applicable, to the extent they are dilutive).

Approximately 1.1 million dilutive shares and 2.0 million dilutive warrants for the year ended December 31, 2023 and approximately 7,000 dilutive shares and 19,500 dilutive warrants for the year ended December 31, 2022 were omitted 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. The carrying amount of our debt outstanding approximates fair value because the Company's 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.

In addition to the items measured at fair value on a recurring basis, in conjunction with the significant impairment loss taken during the year ended December 31, 2023, the Company also measured certain property, plant and equipment at fair value on a nonrecurring basis. These fair value measurements rely primarily on our specific inputs and assumptions about the use of the assets, as observable inputs are not available. Accordingly, we determined that these fair value measurements reside primarily within Level 3 of the fair value hierarchy.

Recently Adopted Accounting Standards

On January 1, 2023, the Company adopted ASU 2020-06. The adoption resulted in the elimination of the beneficial conversion feature recognized on the Company's convertible debt. The Company elected to apply the modified retrospective method to all open contracts as of January 1, 2023, and the cumulative effect of initially applying ASU 2020-06 was recognized as an adjustment to the Company's retained earnings balance as of January 1, 2023. Comparative periods have not been restated and continue to be reported under the accounting standard in effect for those periods.

The cumulative effect of the changes made to the Company's January 1, 2023, Balance Sheet for the adoption of ASU 2020-06 is as follows:

	Balance at December 31, 2022	Adjustments Due to Adoption	Balance at January 1, 2023
Liabilities			
Non-current convertible notes, net	\$ 5,268,399	\$ 3,686,243	\$ 8,954,642
Shareholders' equity			
Additional paid in capital	452,135,653	(3,795,874)	448,339,779
Accumulated deficit	(447,537,493)	109,631	(447,427,862)

The impact due to the change in accounting principle on net income and earnings per share for the year ended December 31, 2023 is as follows:

	Post ASU 2020-06	Pre ASU 2020-06	Difference
Year Ended December 31, 2023			
Net Loss	\$ (17,069,896)	\$ (25,739,479)	\$ 8,669,583
Net Loss attributable to common shareholders	(35,050,574)	(43,720,157)	8,669,583
Earnings Per Share (Basic and Diluted)	\$ (34.19)	\$ (42.65)	\$ (8.46)

Recently Issued Accounting Standards

In November 2023, the FASB issued ASU 2023-07, *Segment Reporting: Improvement to Reportable Segment Disclosures* ("ASU 2023-07"). ASU 2023-07 improves segment disclosure requirements primarily through enhanced disclosures about significant segment expenses. In addition, the amendments enhance interim disclosure requirements, clarify circumstances in which an entity can disclose multiple segment measures of profit or loss, provide new segment disclosure requirements for entities with a single reportable segment, and contain other disclosure requirements. The amendments in ASU 2023-07 are effective for all public entities for fiscal years beginning after December 15, 2023, and interim periods within fiscal years beginning after December 15, 2024. Early adoption is permitted. Management is evaluating the impact of this ASU on the Company's financial statements.

In December 2023, the FASB issued ASU 2023-09, *Income Taxes: Improvements to Income Tax Disclosures* ("ASU 2023-09"). ASU 2023-09 improves income tax disclosures by requiring public entities annually to (1) disclose specific categories in the rate reconciliation and (2) provide additional information for reconciling items that meet a quantitative threshold. ASU 2023-09 is effective for public entities for annual periods beginning after December 15, 2024. Entities are permitted to early adopt the standard for annual financial statements that have not yet been issued or made available for issuance. Management is evaluating the impact of this ASU on the Company's financial statements.

NOTE 3. LIQUIDITY, CONTINUED OPERATIONS, AND GOING CONCERN

During March 2023, the Company redeployed its Thornton manufacturing facility to focus on industrial commercialization of the Company's patent-pending Perovskite solar technologies. In April 2023, the Company purchased manufacturing assets in Zurich, Switzerland with plans to commence manufacturing using this equipment; however, in June 2023, Management exercised its put option to sell the this equipment (see Note 5) and restarted production at its Thornton facility and currently has limited PV production.

The Company will continue to focus on integrating its PV products into scalable and high value markets which includes agrivoltaics, aerospace, etc. 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 relaunch strategy. During the year ended December 31, 2023 the Company used \$9,536,879 in cash for operations. As of December 31, 2023, the Company had \$5,761,067 in current liabilities.

Additionally, projected product revenues are not anticipated to result in a positive cash flow position for the year 2024 overall and, as of December 31, 2023, the Company has a working capital deficit of \$4,225,559. As such, additional financing will be required for the Company to reach a level of sufficient sales to achieve profitability.

The Company continues to seek additional funding 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 financial statements do not include any adjustments that might be necessary should the Company be unable to continue as a going concern.

NOTE 4. RELATED PARTY TRANSACTIONS

On September 15, 2021, the Company entered into a Long-Term Supply and Joint Development Agreement ("JDA") with TubeSolar, a former significant stakeholder in the Company. Under the terms of the JDA, the Company would 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. Additionally, the Company will receive (i) up to \$4 million of non-recurring engineering ("NRE") fees, (ii) up to \$13.5 million of payments upon achievement of certain agreed upon 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. No revenue was recognized under this agreement during the year ended December 31, 2023. The Company recognized \$512,000 of NRE revenue and \$3,000 product revenue under the JDA during the year ended December 31, 2022.

The Company and TubeSolar also established Ascent Solar Technologies Germany GmbH ("Ascent Germany"), in which TubeSolar holds of 30% of the entity. Ascent Germany was established to jointly establish and operate a PV manufacturing facility in Germany that would 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 Company 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 impact the entity's operations and financial performance. The Company contributed \$0 and \$83,559 Ascent Germany during the years ended December 31, 2023 and 2022, respectively. The Company currently cannot quantify its maximum exposure in this entity.

In June, 2023, TubeSolar filed an application for insolvency proceedings with the competent insolvency court due to insolvency and Management continues to monitor this situation.

NOTE 5. ASSET ACQUISITION

On April 17, 2023, the Company entered into an Asset Purchase Agreement (the "Asset Purchase Agreement") with Flisom (the "Seller"), pursuant to which, among other things, the Company purchased certain assets relating to thin-film photovoltaic manufacturing and production from the Seller (collectively, the "Assets"), including (i) certain manufacturing equipment located at Seller's Niederhasli, Switzerland facility (the "Manufacturing Facility") and (ii) related inventory and raw materials at the Manufacturing Facility (collectively, the "Transaction"). In connection with the Transaction, the Company also acquired, by operation of Swiss law, the employment contracts of certain employees of Seller in Switzerland who are functionally predominantly working with the Assets, subject to such employees being offered the right to remain employed by Seller after the closing of the Transaction. The total consideration paid by the Company to Seller in connection with the Transaction was an aggregate amount in cash equal to \$2,800,000.

At the Closing, the Company and Seller also entered into (i) a Transition Services Agreement requiring the Seller to provide transition support for the Company's operation of the Assets, with fees to be paid by the Company for performing defined support services, (ii) a Sublease Agreement allowing the Company's to use the Manufacturing Facility where the Assets are located, and (iii) a Technology License Agreement, pursuant to which Seller granted the Company a revocable, non-exclusive license to certain intellectual property rights of the Seller used in the operation of the Assets (the "Licensed IP"), subject to certain encumbrances on the Licensed IP in favor of Seller's lender. The Company will also receive proceeds from fulfilling a supply agreement obligation for one of the Seller's customers.

The total purchase price, including transaction costs of \$1,283,926, was allocated as follows:

Asset Price Allocation		
Inventory		
Raw Material	\$	130,030
Finished Goods		62,427
Other Assets		98,746
Fixed Assets		
Manufacturing machinery and equipment		3,682,621
Furniture, fixtures, computer hardware and computer software		110,102

In addition to the Asset Purchase Agreement, on April 20, 2023, the Company entered into a letter agreement (the “Letter Agreement”) with FL1 Holding GmbH, a German company (“FL1”) that is affiliated with BD 1 Investment Holding, LLC (“BD1”), a former affiliate of the Company, BD1 and BD Vermögensverwaltung GmbH (“BD”), the parent entity of FL1 (collectively, the “Affiliates”), in connection with the prospective acquisition by FL1 of substantially all shares in Seller following the Closing, subject to the satisfaction of certain terms and conditions. The Letter Agreement, among other things, granted the Company the option, but not the obligation, (i) to purchase certain intellectual property rights of Seller relating to thin-film photovoltaic manufacture and production for \$2,000,000 following the release of certain liens on such intellectual property rights in favor of Seller’s lender, and (ii) for a period of 12 months following the Closing, to resell the Assets to the Affiliates for an aggregate amount equal to \$5,000,000, with such transaction to close within 90 days following the exercise of the Company’s resale right. On June 16, 2023, the Company exercised its option to resell the Assets to the Affiliates. The Company has not received payment on this option and Management continues to discuss with the Affiliates the Company's options and rights to resolve this matter.

In September, 2023, Flisom filed for bankruptcy in Switzerland. These proceeding are in the initial phase and the Company's purchased Assets are located in the Manufacturing Facility. Management continues to be in discussion with the Facility landlord to resolve this matter.

As the purchased Assets were no longer being utilized for its intended purpose and because the put option is in default, Management concluded that there was a change in circumstance that could indicate that the carrying value of the Assets may not be recoverable. Based on Management's analysis, Management concluded the undiscounted cash flows were not sufficient to recover the Asset's carrying value and recorded an impairment loss of \$3,283,715 during the year ended December 31, 2023. The impairment loss represented the difference between the estimated fair value and the carrying value of the Assets. Management estimated the fair value of these Assets using Company specific inputs (including historical and forecasted information) and the Company's assumptions about the use of the Assets as observable inputs are not available. Inputs includes projected selling prices net of projected transaction costs. This analysis incorporated many different assumptions and estimates which involve a high degree of judgment. These assumptions and estimates, which may change significantly in the future, have a substantial impact on the actual impairment loss recorded.

As of December 31, 2023, the Company's remaining book value of the Assets was approximately \$0.8 million and the Company had a payable to Flisom of approximately \$0.8 million.

NOTE 6. PROPERTY, PLANT AND EQUIPMENT

The following table summarizes property, plant and equipment as of December 31, 2023 and 2022:

	As of December 31,	
	2023	2022
Furniture, fixtures, computer hardware and computer software	\$ 468,588	\$ 482,235
Leasehold improvements	15,995	87,957
Manufacturing machinery and equipment	20,661,222	21,739,504
Manufacturing machinery and equipment, in progress	32,087	280,473
Depreciable property, plant and equipment	21,177,892	22,590,169
Less: Accumulated depreciation and amortization	(20,131,008)	(22,038,508)
Net property, plant and equipment	\$ 1,046,884	\$ 551,661

Depreciation expense for the years ended December 31, 2023 and 2022 was \$76,069 and \$56,477, respectively. Fixed assets includes approximately \$786,000 of manufacturing machinery and equipment that are located in Switzerland. Depreciation expense is recorded under “Depreciation and amortization expense” in the Statements of Operations.

NOTE 7. OPERATING LEASES

In September 2020, the Company commenced a operating lease for approximately 100,000 rentable square feet for its manufacturing and operations. The building 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 adjusted 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.

Effective September 1, 2023, the lease was amended to reduce the rentable square feet from 100,000 to approximately 75,000 square feet and the rent and tenant share of expenses were decreased in proportion to the reduction in rentable square feet. The Company recorded this as a lease modification in accordance with ASC 842, Leases, and recorded a reduction to the right of use asset and lease liability of \$1,292,316 and \$1,376,994, respectively. The Company recognized a gain on the lease modification of \$84,678, which was recorded as other income in the Statement of Operations.

As of December 31, 2023 and 2022, assets and liabilities related to the Company's lease were as follows:

	As of December 31,	
	2023	2022
Operating lease right-of-use assets, net	\$ 2,364,672	\$ 4,324,514
Current portion of operating lease liability	491,440	733,572
Non-current portion of operating lease liability	2,043,025	3,827,878

During the years ended December 31, 2023 and 2022 the Company recorded operating lease costs included in Selling, general, and administrative expenses on the Statement of Operations of \$961,333 and \$1,042,346, respectively.

Future maturities of the operating lease liability are as follows:

2024	\$	769,129
2025		792,203
2026		815,969
2027		840,449
Total lease payments	\$	3,217,750
Less amounts representing interest	\$	(683,285)
Present value of lease liability	\$	2,534,465

The remaining weighted average lease term and discount rate of the operating lease is 48.0 months and 12.0%, respectively.

During the years ended December 31, 2023 and 2022, the Company recorded short term lease expense of approximately \$326,400 and \$16,200, respectively.

NOTE 8. INVENTORIES

Inventories consisted of the following at December 31, 2023 and 2022:

	As of December 31,	
	2023	2022
Raw materials	\$ 445,721	\$ 577,799
Work in process	1,775	37,351
Finished goods	—	133
Total	\$ 447,496	\$ 615,283

NOTE 9. NOTES PAYABLE

Prior to 2020, the Company entered into an agreement with A vendor ("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, 2023, the Company had not made any payments on this note and the accrued interest was \$81,336. and the note is due upon demand. This note is recorded as Other payable in the Balance Sheets.

NOTE 10. CONVERTIBLE NOTES

The following tables provide a summary of the activity of the Company's convertible notes:

	Principal Balance 1/1/2022	New Notes	Notes assigned or exchanged	Notes converted	Principal Balance 12/31/2022	Less: Discount Balance	Net Principal Balance 12/31/2022
BD1 Notes (related party)	\$ 9,900,000	\$ —	\$ (2,000,000)	\$ (7,900,000)	\$ —	\$ —	\$ —
Nanyang Note	500,000	—	1,000,000	(1,500,000)	—	—	—
Fleur	—	—	1,000,000	(1,000,000)	—	—	—
Sabby	—	7,500,000	—	(107,101)	7,392,899	(4,777,643)	2,615,256
L1	—	7,500,000	—	—	7,500,000	(4,846,857)	2,653,143
	<u>\$ 10,400,000</u>	<u>\$ 15,000,000</u>	<u>\$ —</u>	<u>\$ (10,507,101)</u>	<u>\$ 14,892,899</u>	<u>\$ (9,624,500)</u>	<u>\$ 5,268,399</u>

	Principal Balance 12/31/2022	Principal Settled	Principal Balance 12/31/2023	Less: Discount	Net Principal Balance 12/31/2023
Sabby	\$ 7,392,899	\$ (7,392,899)	\$ —	\$ —	\$ —
L1	7,500,000	(7,093,333)	406,667	(51,731)	354,936
	<u>\$ 14,892,899</u>	<u>\$ (14,486,232)</u>	<u>\$ 406,667</u>	<u>\$ (51,731)</u>	<u>\$ 354,936</u>

BD1 Convertible Note

Prior to January 1, 2022, the Company entered into a securities exchange agreement (“BD1 Exchange Agreement”) with BD1, who had previously acquired \$6,252,000 of principal of existing unsecured debt and \$1,145,000 of accrued interest from a number of investors. 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 \$100 per share. Accordingly, the Company would issue 105,000 shares of Common Stock upon a full conversion of the BD1 Exchange Notes. As of January 1, 2022, the outstanding principal balance was \$9,900,000.

The Company accreted the discount on the remaining principal to interest expense, ratably, over the life of the note.

On January 3, 2022, BD1 assigned \$1,000,000 of its convertible notes to Fleur Capital Pte Ltd (“Fleur”). On January 21, 2022, BD1 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 all of their remaining \$7,900,000 aggregate outstanding principal amount into 79,000 shares of common stock. The remaining discount of approximately \$1,721,000 was charged to interest expense upon conversion.

Nanyang Convertible Note

Prior to January 1, 2022, Nanyang acquired \$500,000 of the BD1 Exchange Notes from BD1 with the same terms. On January 21, 2022, as discussed above, BD1 assigned an additional \$1,000,000 of the BD1 Convertible Notes to Nanyang with the same terms. On February 2, 2022, Nanyang converted \$600,000 of their convertible notes into 6,000 shares of common stock. The associated discount on the converted portion of the notes of approximately \$133,000 was charged to interest expense.

In July 2022, the Company and Nanyang agreed to waive the 4.99% cap on securities beneficially owned by Nanyang and its affiliates. On July 11, 2022, Nanyang converted all of their remaining \$900,000 balance of their convertible notes into 9,000 shares of common stock. The remaining associated discount of approximately \$176,000 on the note was charged to interest expense.

Fleur Convertible Note

On January 21, 2022, as discussed above, BD1 assigned \$1,000,000 of the BD1 Convertible Notes to Fleur with the same terms. On February 2, 2022, Fleur converted \$700,000 of their convertible notes into 7,000 shares of common stock. The associated discount on the converted portion of the notes of approximately \$155,000 was charged to interest expense.

In July 2022, the Company and Fleur agreed to waive the 4.99% cap on securities beneficially owned by Fleur. On July 11, 2022, Fleur converted all of their remaining \$300,000 balance of their convertible notes into 3,000 shares of common stock. The remaining associated discount of approximately \$59,000 on the note was charged to interest expense.

Sabby / LI Convertible Note

On December 19, 2022, the Company entered into a Securities Purchase Contract (the “Purchase Contract”) with two institutional investors (each, an “Investor” and collectively, the “Investors”) for the issuance of \$12,500,000 in aggregate principal amount of Senior Secured Original Issue 10% Discount Convertible Advance Notes, for a purchase price of \$11,250,000 in cash, net of an original issuance discount of \$1,250,000 (the “Registered Advance Notes”), which matures in 18 months, bears 4.5% interest per annum, payable, at the option of the Company, in kind or in cash, subject to certain conditions, and is convertible, at the option of the holders from time to time, into shares of the Company’s Common Stock, or repayable in cash at maturity.

Under the Purchase Contract, in a concurrent private placement (the “Private Placement”), the Company issued to the Investors an additional \$2,500,000 in aggregate principal amount of Senior Secured Original Issue 10% Discount Convertible Advance Notes, for a purchase price of \$2,250,000 in cash, net of an original issuance discount of \$250,000 (the “Private Placement Advance Notes” and, together with the Registered Advance Notes, the “Advance Notes”), which matures in 18 months, bears 4.5% interest per annum, payable, at the option of the Company, in kind or in cash, subject to certain conditions, and is convertible, at the option of the holders from time to time, into shares of the Company’s Common Stock, or repayable in cash at maturity.

The Advanced Notes are secured by a pledge of all assets of the Company pursuant to a Security Agreement, dated as of December 19, 2022. The Investors can convert the Advanced Notes into shares of the Company’s Common Stock at a conversion price, which is equal to the lower of (1) a 30% premium to the average of the five most recent daily volume weighted average price (“VWAPs”) of the Common Stock as measured on the day prior to the issuance of the Registered Advance Notes (the “Fixed Conversion Price”) and (2) 92.5% of the three lowest VWAPs of the Common Stock on the 10 trading days preceding delivery of a Conversion Notice by an Investor. The conversion price cannot be less than \$114 if required in accordance with the rules and regulations of Nasdaq. An Investor (together with its affiliates) may not convert any portion of such Investor’s Advance Notes to the extent that the Investor would beneficially own more than 4.99% of the Company’s outstanding shares of Common Stock after conversion, except that upon at least 61 days prior notice from the Investor to the Company, the Investor may increase the maximum amount of its beneficial ownership of the Company’s outstanding shares of Common Stock after converting the holder’s Advance Notes to up to 9.99% of the number of shares of Common Stock outstanding immediately after giving effect to the conversion.

Additionally, the Investors have the option to require early prepayment of the principal amount of the Registered Advance Notes in cash from up to 30% of the gross proceeds of any subsequent issuance by the Company, for cash, of shares of the Company’s Common Stock or convertible securities, or any combination of units thereof. The Company, pursuant to the terms in the Purchase Contract, 210 days after the date of the Purchase Contract, may request that one of the Investors (the “Additional Advance Notes Investor”) acquire from the Company for a purchase price equal to 90% of the principal amounts thereof, additional Advance Notes (the “Additional Advance Notes”) to be issued in a registered direct offering in an aggregate principal amount not to exceed \$1,000,000 (or, with the consent of the Additional Advance Notes Investor, \$2,000,000) in any given month, up to an aggregate principal amount of \$35,000,000 of Additional Advance Notes, provided, however, that no more than one Additional Advance Note may be issued during any 30-day period.

The Company also issued to the Investors warrants to purchase up to 12,568 shares of Common Stock (the “Warrants”), which have a five-year term and an exercise price of \$786 per share, in each case subject to adjustment in accordance with the terms thereof. The Warrants are exercisable for cash. If, at the time the holder exercises any Warrants, a registration statement registering the issuance of the shares of Common Stock underlying the Warrants is not then effective or available for the issuance of such shares, then the Warrants may be net exercised on a cashless basis according to a formula set forth in the Warrants.

On December 19, 2022, the Company received \$13,500,000 of gross proceeds from the Investors. The \$13,500,000 was allocated between the Advanced Notes and Warrants purchased based on the relative fair value of these instruments. The fair value of the Advanced Notes was estimated as the proceeds received and the fair value of the Warrants was determined using the Black Scholes model using the following inputs and are both considered to be Level 2 inputs on the fair value hierarchy:

	Warrants
Expected stock price volatility	129.5 %
Dividend yield	0 %
Risk-free interest rate	3.7 %
Expected life of the warrants (in years)	2.5

Additionally, the Company determined the conversion feature was beneficial to the Investors at the date of issuance. The Company allocated a portion of the proceeds to the beneficial conversion feature ("BCF") based on its intrinsic value. The Company then allocated transaction costs based on these allocations resulting in the following allocation of proceeds:

	Principal Amount	Allocation	Original Note Discount	Transaction Costs	Net Amount
Convertible Debt	\$ 15,000,000	\$ (7,480,058)	\$ (1,500,000)	\$ (930,678)	\$ 5,089,264
Warrants	—	2,990,029	—	(462,256)	2,527,773
BCF	—	4,490,029	—	(694,155)	3,795,874
	<u>\$ 15,000,000</u>	<u>\$ —</u>	<u>\$ (1,500,000)</u>	<u>\$ (2,087,089)</u>	<u>\$ 11,412,911</u>

On March 29, 2023 and on April 12, 2023, the Company and each of the Investors amended the agreements (the "Amendment"), to waive the event of default, provide a prepayment schedule for the Advance Notes held by each of the Investors, and reduce the floor price to \$40. After giving effect to the Amendment, the Advance Notes will be prepaid by the Company in cash on the following dates and in the following aggregate amounts, at a price equal to 100% of the principal amount of the Advance Notes to be prepaid plus accrued and unpaid interest thereon (if any). The Company's failure to comply with the terms of the Amendment would constitute an "Event of Default" under the Advance Notes.

Prepayment Date	Aggregate
April 3, 2023	\$ 333,333
April 13, 2023	333,333
May 18, 2023	666,667
June 19, 2023	666,667
	<u>\$ 2,000,000</u>

On May 22, 2023, the Investors and the Company agreed to defer for 90 days each of the two prepayments of \$666,667 that were scheduled for May 18, 2023 and June 19, 2023. Accordingly, (i) the May 18, 2023 payment was deferred until August 16, 2023, and (ii) the June 19, 2023 payment was delayed until September 17, 2023.

On May 25, 2023, the Company and each of the Investors entered into a Waiver and Amendment Agreement (the "Second Amendment") relating to the Securities Purchase Contract and the Advance Notes. Pursuant to the Second Amendment, the Company and each of the Investors agreed to amend the Advance Notes to provide that if the Company receives a Notice of Conversion at a time that the Conversion Price (or, as applicable, the Alternative Conversion Price) then in effect Price, without regard to the Floor Price (the "Applicable Conversion Price"), is less than the Floor Price then in effect, the Company shall issue a number of shares equal to the Conversion Amount divided by such Floor Price and, at its election (x) pay the economic difference between the Applicable Conversion Price and such Floor Price (the "Outstanding Conversion Amount") in cash at such time or (y) pay the Outstanding Conversion Amount following the consummation of a reverse stock split by the Company (1) in cash or (2) by issuing to the Holder a number of shares of Common Stock with an aggregate value equal to the Outstanding Conversion Amount, with the value per share of Common Stock for purposes of such calculation equal to (i) if such shares are issued on or prior to August 23, 2023, the daily VWAP of the Common Stock on the Trading Day following the date of the consummation of such reverse stock split or (ii) if such shares are issued after August 23, 2023, 90% of the daily VWAP of the Common Stock on the Trading Day following the date of the consummation of such reverse stock split. The Company records the Outstanding Conversion Amounts as Conversions Payable on the Balance Sheets.

During the year ended December 31, 2023, the Company settled \$14.5 million of principal as follows:

Principal Settled

Principal converted into stock	\$	6,990,269
Principal converted into conversions payable		6,470,540
Cash Payments		1,025,423
Total Principal Settled	\$	14,486,232

On December 1, 2023, the Company and each of the Investors agreed that future stock payments of existing conversion payable liabilities will be at an issue price of 100% of the VWAP of the Common Stock on the conversion date, but the conversion price may not be less than the revised Floor Price of \$0.65. The Conversion payable activity for the year ended December 31, 2023 was as follows:

Conversions payable

Balance at January 1, 2023	\$	—
Additions to conversions payable		6,470,540
Cash payments		(5,211,738)
Conversions payable settled in stock		(169,642)
Balance at December 31, 2023	\$	1,089,160

During the years ended December 31, 2023 and 2022, the Company issued 465,574 and 350 shares of common stock, respectively, under the Securities Purchase Contract. During the year ended December 31, 2023, the Company recognized \$4,077,510 in accelerated discounts in Additional Paid-in Capital on the Statements of Changes in Stockholders' Equity (Deficit).

The Securities Purchase Contract also included certain warrants to purchase up to 12,567 shares of common stock (the "Warrants"). The Warrants were issued with an exercise price equal to \$786 per share, subject to certain adjustments in certain events, including the future issuance by the Company of securities with a purchase or conversion, exercise or exchange price that is less than the exercise price of the Warrants then in effect at any time.

On April 14, 2023 the Company entered a securities purchase agreement ("SPA") with Lucro Investments VCC-ESG Opportunities Fund ("Lucro") for an approximate \$9 million private placement (the "Private Placement") of an aggregate of 37,500 shares of the Company's Common Stock. The per share purchase price for the Shares was \$240 per share. The terms of the SPA with Lucro triggered certain adjustments to the Advance Notes and the Warrants in accordance with the existing terms of the outstanding Advance Notes and the outstanding Warrants. Following these adjustments:

1. The fixed conversion price of the remaining principal outstanding on the Advance Notes was lowered to \$73.22 per share of Common Stock;
2. The exercise price of the outstanding Warrants was lowered to \$73.22 per share of Common Stock; and
3. The number of shares that the Warrants are exercisable for increased from 12,567 to 134,904 shares of Common Stock.

On June 29, 2023 the Company entered a securities purchase agreement ("Series 1B SPA") with accredited investors (the "Accredited Investors") for the private placement of \$900,000 for 900 shares of the Company's newly designated Series 1B Convertible Preferred Stock ("Series 1B Preferred Stock") (Note 13). Shares of the Series 1B Preferred Stock are convertible at the option of the holder into common stock at an initial conversion price of equal to \$28.00 per share.

The terms of the Series 1B SPA triggered certain further adjustments to the Advance Notes and the Warrants in accordance with the existing terms of the outstanding Advance Notes and the outstanding Warrants. Following these further adjustments in June 2023:

1. The fixed conversion price of the remaining principal outstanding on the Advance Notes was lowered to \$25.36 per share of Common Stock;
2. The exercise price of the outstanding Warrants was lowered to \$25.36 per share of Common Stock; and
3. The number of shares that the Warrants are exercisable for increased from 134,904 to 389,500 shares of Common Stock.

On September 28, 2023, the Company entered into a placement agency agreement (the “Placement Agent Agreement”) with Dawson James Securities Inc. (“Dawson James”) pursuant to which the Company engaged Dawson James as the placement agent for a registered public offering by the Company (the “Offering”), of an aggregate of 3,572,635 units (“Units”) at a price of \$2.88 per Unit, for gross proceeds of approximately \$10.3 million, before deducting offering expenses.

The terms of the Offering triggered certain further adjustments to the Advance Notes and the Warrants in accordance with the existing terms of the outstanding Advance Notes and the outstanding Warrants. Following these further adjustments in October 2023:

1. The fixed conversion price of the approximately then outstanding \$400,000 principal amount currently outstanding Advance Notes has been lowered to \$1.76 per share of Common Stock;
2. The exercise price of the outstanding Warrants has been lowered to \$1.76 per share of Common Stock; and
3. The number of shares that the Warrants are exercisable for has been increased from 389,500 to 5,596,232 shares of Common Stock.

Pursuant to ASC 260, Earnings per Share, the Company recorded a deemed dividend for the down round adjustments of \$17,980,678 which reduced income available to common shareholders in the Company's earnings per share calculations.

The discount on the note is recorded as interest expense ratably over the term of the note. Interest payable on the Advance Notes, as of December 31, 2023 and 2022 was approximately \$29,900 and \$22,100, respectively. The Company recognized \$301,700 and \$22,100 in interest expense for the years ended December 31, 2023 and 2022, respectively and recognized \$1,809,000 and \$286,200 as interest expense for the amortization of the discount for the years ended December 31, 2023 and 2022.

NOTE 11. 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 at 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.

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 million, 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. At December 31, 2023, 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. After making adjustment for the Company's prior reverse stock splits, all 48,100 outstanding Series A preferred shares are convertible into less than one common share. Upon any conversion (whether at the option of the Company or the holder), the holder is entitled to receive any accrued but unpaid dividends.

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, 2023, there were 48,100 shares of Series A Preferred Stock outstanding and accrued and unpaid dividends, included as Accrued Interest on the Balance Sheet, of \$514,269. As of December 31, 2022, there \$465,501 of accrued and unpaid dividends included as Accrued Interest on the Balance Sheet.

NOTE 12. 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 \$100 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.

As of January 1, 2022, Crowdex Investment, LLC ("Crowdex") owned 1,300 shares of Series 1A Preferred Stock and TubeSolar owned 2,400 shares of Series 1A Preferred Stock. On February 1, 2022, Crowdex converted their 1,300 shares of Series 1A Preferred Stock into 13,000 shares of common stock and TubeSolar converted their 2,400 shares of Series 1A Preferred Stock into 24,000 shares of common stock.

NOTE 13. SERIES 1B PREFERRED STOCK

On June 29, 2023, the Company entered into the Series 1B SPA with Accredited Investors for the private placement of 900 shares of Series 1B Preferred Stock for \$900,000 gross proceeds.

The Series 1B Preferred Stock ranks senior to the common stock with respect to dividends and rights upon liquidation. Holders of the Series 1B Preferred Stock do not have voting rights and are not entitled to any fixed rate of dividends; however, if the Company pays a dividend or otherwise makes a distribution or distributions payable on shares of common stock, then the Company will make a dividend or distribution to the holders of the Series 1B Preferred Stock in such amounts as each share of Series 1B Preferred Stock would have been entitled to receive if such share of Series 1B Preferred Stock was converted into shares of common stock at the time of payment of the stock dividend or distribution.

There is no scheduled or mandatory redemption for the Series 1B Preferred Stock and there is no redemption for the Series 1B Preferred Stock exercisable (i) at the option of the Investor, or (ii) at the option of the Company.

Upon our liquidation, dissolution or winding up, holders of Series 1B Preferred Stock will be entitled to be paid out of the Company 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.

Shares of the Series 1B Preferred Stock are convertible at the option of the holder into common stock at an initial conversion price of equal to \$28.00 per share. The conversion price for the Series 1B Preferred Stock is subject to adjustment on the earliest of the date that (a) a resale registration statement relating to the shares of common stock underlying the Series 1B Preferred Stock has been declared effective by the SEC, (b) all of such underlying shares of common stock have been sold pursuant to SEC Rule 144 or may be sold pursuant to SEC Rule 144 without volume or manner-of-sale restrictions, (c) the one year anniversary of the closing provided that a holder of such underlying shares is not an affiliate of the Company or (d) all of such underlying shares may be sold pursuant to an exemption from registration under Section 4(a)(1) of the Securities Act without volume or manner-of-sale restrictions (such earliest date, the "Reset Date").

On the Reset Date, the conversion price shall be equal to the lower of (i) \$28.00 and (ii) 90% of the lowest VWAP for the Company's common stock out of the 10 trading days commencing 5 trading days immediately prior to the Reset Date, provided that the conversion price may not be adjusted to less than \$10.00 per share.

Holders of the Series 1B Preferred Stock (together with its affiliates) may not convert any portion of such Investor's Series 1B Preferred Stock to the extent that the holder would beneficially own more than 4.99% of the Company's outstanding shares of common stock after conversion, except that upon at least 61 days' prior notice from the holders to the Company, the holder may increase the maximum amount of its beneficial ownership of outstanding shares of the Company's Common Stock after converting the holder's Series 1B Preferred Stock up to 9.99% of the number of shares of Common Stock outstanding immediately after giving effect to the conversion, as such percentage ownership is determined in accordance with the terms of the Series 1B Preferred Stock.

On October 2, 2023, with the closing of the Public Offering (Note 14), the Company retired the \$900,000 of Series 1B Preferred Stock.

NOTE 14. 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, 2023, the Company had 3,583,846 shares of common stock outstanding. The Company has not declared or paid any dividends related to the common stock through December 31, 2023.

Private Placement Offering

On August 4, 2022, the Company received \$1,000,000 of gross proceeds pursuant to an unsecured convertible promissory note (the "Bridge Note") sold and issued to Lucro Investments VCC – ESG Opportunities Fund ("Lucro"), an affiliate of Fleur. The Bridge Note matures on February 3, 2023 (the "Maturity Date") and does not bear interest (except in the event of a default). If the Company completes a "Qualified Financing", the \$1 million outstanding principal amount of the Bridge Note will automatically convert into the type of securities offered by the Company in the Qualified Financing on the same pricing, terms and conditions as specified in the Qualified Financing. A Qualified Financing is defined as (i) the Company's issuance and sale of shares of its equity or equity-linked securities to investors, (ii) on or before the Maturity Date, (iii) in a financing with total proceeds to the Company of at least \$5,000,000 (inclusive of the conversion of the \$1,000,000 Bridge Note), and (iv) which financing would result in the listing of the Company's common stock on the Nasdaq Capital Market ("Nasdaq").

On August 8, 2022, the Company entered into a securities purchase agreement ("SPA") with Lucro for the private placement (the "Common Stock Private Placement") of an aggregate of 4,717 shares (the "Shares") of the Company's common stock and warrants exercisable for up to an additional 7,076 shares of Common Stock (the "Warrants"). The Shares and Warrants were sold in units (the "Units") at a fixed price of \$1,060 per Unit. Each Unit consists of (i) one Share and (ii) Warrants exercisable for 1.5 shares of Common Stock.

Each Warrant is exercisable for five years at an exercise price of \$1,060 per one share of Common Stock. The holder may not exercise the Warrants to the extent that, after giving effect to such exercise, the holder would beneficially own in excess of 9.99% of the shares of Common Stock outstanding, or, at the holder's election on not less than 61 days notice, 19.99%. The Warrants are exercisable for cash. If, at the time the holder exercises any Warrants, a registration statement registering the issuance of the shares of Common Stock underlying the Warrants is not then effective or available for the issuance of such shares, then the Warrants may be net exercised on a cashless basis according to a formula set forth in the Warrants. There were 7,076 warrants outstanding at December 31, 2022.

On August 19, 2022, the Company received \$4,000,000 of gross proceeds from the Common Stock Private Placement and the \$1,000,000 Bridge Note was canceled and converted into Common Stock and Warrants. The \$5,000,000 was allocated between the Common Stock and Warrants purchased based on the relative fair value of these instruments. The fair value of the Common Stocks was determined using the closing price of the stock at close if the SPA (Level 1 on the fair value hierarchy) and the fair value of the Warrants was determined using the Black Scholes model using the following inputs (Level 2 on the fair value hierarchy):

	Warrants
Expected stock price volatility	82 %
Dividend yield	0 %
Risk-free interest rate	3 %
Expected life of the warrants (in years)	5

Public Offering

On September 28, 2023, the Company entered into a placement agency agreement (the "Placement Agent Agreement") with Dawson James Securities Inc. ("Dawson James") pursuant to which the Company engaged Dawson James as the placement agent for a registered public offering by the Company (the "Offering"), of an aggregate of 3,572,635 units ("Units") at a price of \$2.88 per Unit, for gross proceeds of approximately \$10.3 million, before deducting offering expenses.

Each Unit is comprised of (i) one share of common stock or, in lieu of common stock, one Prefunded warrant to purchase a share of common stock, and (ii) one common warrant to purchase a share of common stock. The Prefunded warrants are immediately exercisable at a price of \$0.0001 per share of common stock and only expire when such Prefunded warrants are

fully exercised. The common warrants are immediately exercisable at a price of \$2.88 per share of common stock and will expire five years from the date of issuance.

The Company agreed to pay Dawson James a placement agent fee in cash equal to 8.00% of the gross proceeds from the sale of the Units. The Company also agreed to reimburse Dawson James for all reasonable travel and other out-of-pocket expenses, including the reasonable fees of legal counsel, not to exceed \$155,000.

The Offering closed on October 2, 2023 and, in the Offering, the Company issued (i) 389,024 common shares, (ii) 3,183,611 Prefunded warrants, and (iii) 3,572,635 common warrants.

The \$10.3 million was allocated between the Common Stock or Prefunded Warrants and Common Stock Warrants purchased based on the relative fair value of these instruments. The fair value of the Common Stocks or Prefunded Warrants was determined using the closing price of the stock at close of the SPA (Level 1 on the fair value hierarchy) and the fair value of the Warrants was determined using the Black Scholes model using the following inputs (Level 2 on the fair value hierarchy):

	Warrants
Expected stock price volatility	156 %
Dividend yield	0 %
Risk-free interest rate	5 %
Expected life of the warrants (in years)	2.5

The Company used a portion of the proceeds from the Offering to retire approximately \$5.2 million of the outstanding conversion amount payable related to the Company's secured convertible notes and all \$900,000 of the Company's outstanding Series 1B Preferred Stock.

During the year ended December 31, 2023, 2,468,500 of the pre-funded warrants were exercised into common stock.

Warrants

As of December 31, 2023, there were 9,998,233 (of which 715,111 are Prefunded warrants) outstanding warrants with exercise prices between \$1.76 and \$1,060 per share (per share amounts exclude the Prefunded warrants).

As of December 31, 2022, there were 19,647 outstanding warrants with exercise prices between \$786 and \$1,060 per share.

Preferred Stock

December 31, 2023, 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	—
Series 1B	900	—
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 11 for Series A Preferred Stock activity.

Series 1A Preferred Stock

Refer to Note 12 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, 2023 and 2022.

NOTE 15. SHARE-BASED COMPENSATION

On September 21, 2022, the Company's Board of Directors appointed Jeffrey Max as the Company's new Chief Executive Officer and granted an inducement grant of restricted stock units ("RSUs") for an aggregate of 17,673 shares of Ascent's common stock. 20% of the RSUs are fully vested upon grant. The remaining 80% of the RSUs vests in equal monthly increments over the next 36 months. Any outstanding and unvested RSUs will accelerate and fully vest upon the earlier of (i) a change of control and (ii) the termination of Mr. Max's employment for any reason other than (x) by the Company for cause or (y) by Mr. Max without good reason. The estimated fair value of the restricted stock unit is \$1,074, the closing price at grant date. The RSUs will settle in eight equal increments on the last business day of each calendar quarter beginning with the initial settlement date of September 30, 2024.

On December 12, 2022, the Company's Board of Directors appointed Paul Warley as the Company's new Chief Financial Officer and granted him an inducement grant of RSUs for an aggregate of 3,500 shares of Ascent's common stock. 20% of the RSUs are fully vested upon grant. The remaining 80% of the RSUs vests in equal monthly increments over the next 36 months. Any outstanding and unvested RSUs will accelerate and fully vest upon the earlier of (i) a change of control and (ii) the termination of Mr. Warley's employment for any reason other than (x) by the Company for cause or (y) by Mr. Warley without good reason. The estimated fair value of the restricted stock unit is \$596, the closing price at grant date. The RSUs will settle in eight equal increments on the last business day of each calendar quarter beginning with the initial settlement date of December 31, 2024.

On April 26, 2023, the Company terminated its employment contract with Mr. Max resulting in the forfeiture of 11,389 restricted stock units. The remaining non-vested shares of 1,867 units as of December 31, 2023 are expected to vest in the future. Total unrecognized share-based compensation expense from the remaining unvested restricted stock as of December 31, 2023 was approximately \$1.1 million and is expected to be recognized over 24 months. The Company recognized share-based compensation expense related to restricted stock grants of \$2,243,445 and \$5,478,734 for the year ended December 31, 2023 and 2022, respectively. The following table summarizes non-vested restricted stock and the related activity as of and for the years ended December 31, 2023, and 2022:

	Shares	Weighted Average Grant Date Fair Value
Non-vested at January 1, 2022	—	\$ —
Granted	21,173	994.00
Vested	(5,413)	1,012.00
Forfeited	—	—
Non-vested at December 31, 2022	15,760	\$ 990.00
Granted	—	—
Vested	(2,504)	895.85
Forfeited	(11,389)	1,074.00
Non-vested at December 31, 2023	1,867	\$ 596.00

The fair values of the respective vesting dates of RSUs was \$264,800 and \$4,933,600 for the years ended December 31, 2023 and 2022, respectively.

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, 2023, 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, 2023, the Company had \$83.9 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 resulted in a limitation of the Company’s utilizable net operating loss carryforwards and ultimately a write-off of the associated limited NOLs in the amount of \$87 million. 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, 2023 and 2022, the components of these temporary differences and the deferred tax asset were as follows:

	As of December 31,	
	2023	2022
Deferred Tax Asset		
Accrued expenses	\$ 214,000	\$ 388,000
Inventory allowance	26,000	83,000
Other	—	7,000
Operating lease liability	627,000	1,122,000
Tax effect of NOL carryforward	78,427,000	76,089,000
Share-based compensation	1,909,000	1,348,000
Section 174 costs	547,000	355,000
Warranty reserve	5,000	5,000
Gross Deferred Tax Asset	81,755,000	79,397,000
Valuation allowance	(81,142,000)	(78,261,000)
Net Deferred Tax Asset	\$ 613,000	\$ 1,136,000
Operating lease right-of-use asset, net	(585,000)	(1,064,000)
Depreciation	(15,000)	(52,000)
Amortization	(13,000)	(20,000)
Net Deferred Tax Liability	\$ (613,000)	\$ (1,136,000)
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, 2023. The Company's deferred tax valuation allowance of \$81.1 million reflected above is an increase of \$2.8 million from the valuation allowance reflected as of December 31, 2022 of \$78.3 million.

As of December 31, 2023, the Company has not recorded a liability for uncertain tax positions. No interest and penalties related to uncertain tax positions were accrued at December 31, 2023.

The Company's effective tax rate for the years ended December 31, 2023 and 2022 differs from the statutory rate due to the following (expressed as a percentage of pre-tax income):

	2023	2022
Federal statutory rate	21.0 %	21.0 %
State statutory rate	2.7 %	3.1 %
Permanent tax differences	(5.9) %	(2.9) %
Deferred true-ups	(0.9) %	(3.3) %
Deferred rate change	— %	(1.4) %
Change in valuation allowance	(16.9) %	(16.5) %
Total	— %	— %

NOTE 17. COMMITMENTS AND CONTINGENCIES

On September 21, 2022, the Company and Victor Lee, our former CEO, entered into a Separation Agreement and Release of Claims September 21, 2022 (the "Separation Agreement"). Under the Separation Agreement Mr. Lee is entitled, subject to his non-revocation of a general release of claims in favor of the Company, to the following separation benefits: (i) payment of twelve (12) months salary equal to \$360,000, which amount shall be payable in accordance with the Company's customary payroll practices and regular payroll time periods as in effect from time to time; (ii) the Company will pay Mr. Lee's \$200,000 declared but unpaid cash bonus in two installments; and (iii) the Company shall pay COBRA premiums at the Company's current contribution level for the next 12 months. The Company had accrued liabilities of approximately \$0 and \$363,000 included in Severance Payable on the Balance Sheets as of December 31, 2023 and 2022, respectively.

On April 26, 2023, the board of directors of the Company terminated Mr. Max as the Company's President and Chief Executive Officer. Mr. Max claims that his termination was not for cause as defined in his employment agreement which could enable him to certain benefits, including severance and vesting of restricted stock units. Management believes Mr. Max was terminated for cause and any such claims, if asserted, would be without substantial merit. Although the outcome of any legal proceedings is uncertain, the Company will vigorously defend any future claims made by Mr. Max.

On August 15, 2023, H.C. Wainwright & Co., LLC ("Wainwright") filed an action against the Company in the New York State Supreme Court in New York County. The complaint alleges a breach by the Company of an investment banking engagement letter entered into in October 2021. The Wainwright engagement letter expired in April 2022 without any financing transaction having been completed. The complaint claims that Wainwright is entitled, under a "tail provision", to an 8% fee and 7% warrant coverage on the Company's \$15 million secured convertible note financing. The complaint seeks damages of \$1.2 million, 2,169.5 common stock warrants with a per share exercise price of \$605, and attorney fees. While it is too early to predict the outcome of this legal proceeding or whether an adverse result would have a material adverse impact on our operations or financial position, we believe we have meritorious defenses and intend to defend this legal matter vigorously.

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 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 financial position or results of operations in particular quarterly or annual periods.

NOTE 18. RETIREMENT PLAN

The Company has 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 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. Employer contributions vest over a three-year period, one-third per year. Employer 401(k) match expense was \$107,526 and \$129,040 for the year ended December 31, 2023 and 2022, respectively. 401(k) match expenses are recorded under "Research, development and manufacturing operations" expense and "Selling, general and administrative" expense in the Statements of Operations.

NOTE 19. SUBSEQUENT EVENTS

Subsequent to December 31, 2023, approximately \$160,400 of the conversions payable were converted into 209,997 shares of Common Stock.

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in the Registration Statements of Ascent Solar Technologies, Inc. on Forms S-3 (Nos. 333-267971, and 333-267915), of our report dated February 21, 2024 relating to our audit of the financial statements, which appears in this Annual Report on Form 10-K for the year ended December 31, 2023.

/s/ Haynie & Company

Haynie & Company
Salt Lake City, Utah
February 21, 2024

ASCENT SOLAR TECHNOLOGIES, INC.

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350
AS ADOPTED PURSUANT TO
SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Paul Warley, certify that:

1. I have reviewed this Annual Report on Form 10-K of Ascent Solar Technologies, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officers and I have disclosed, based on our most recent evaluation, to the registrant's auditors and the audit committee of registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

February 21, 2024

/s/ PAUL WARLEY

Paul Warley
President and Chief Executive Officer, Director
(Principal Executive Officer and Authorized Signatory)

ASCENT SOLAR TECHNOLOGIES, INC.

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350
AS ADOPTED PURSUANT TO
SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Jin Jo, certify that:

1. I have reviewed this Annual Report on Form 10-K of Ascent Solar Technologies, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officers and I have disclosed, based on our most recent evaluation, to the registrant's auditors and the audit committee of registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

February 21, 2024

/s/ JIN JO

Jin Jo

Chief Financial Officer

(Chief Accounting Officer and Authorized Signatory)

ASCENT SOLAR TECHNOLOGIES, INC.

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report of Ascent Solar Technologies, Inc. (the “Company”) on Form 10-K for the period ended December 31, 2023 as filed with the Securities and Exchange Commission on the date therein specified (the “Report”), I, Paul Warley, President and Chief Executive Officer, Director of the Company, certify pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to my knowledge:

- (1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

February 21, 2024

/s/ PAUL WARLEY

Paul Warley
President and Chief Executive Officer, Director
(Principal Executive Officer and Authorized Signatory)

ASCENT SOLAR TECHNOLOGIES, INC.

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report of Ascent Solar Technologies, Inc. (the “Company”) on Form 10-K for the period ended December 31, 2023 as filed with the Securities and Exchange Commission on the date therein specified (the “Report”), I, Jin Jo, Chief Financial Officer of the Company, certify pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to my knowledge:

- (1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

February 21, 2024

/s/ JIN JO

Jin Jo

Chief Financial Officer

(Chief Accounting Officer and Authorized Signatory)

ASCENT SOLAR TECHNOLOGIES, INC.

POLICY REGARDING THE RECOUPMENT OF CERTAIN PERFORMANCE-BASED COMPENSATION PAYMENTS

Purpose and Scope. This policy sets forth the conditions under which Ascent Solar Technologies, Inc. (the “Company”) will seek reimbursement with respect to incentive-based compensation received by, and to recover profits realized from the sale of shares of the Company’s common stock by, executive officers of the Company (the “Policy”).

- (a) **“Incentive-based compensation”** means any compensation that is granted, earned or vested based wholly or in part upon the attainment of a financial reporting measure.
- (b) Incentive-based compensation is **“received”** in the Company’s fiscal period during which the financial reporting measure specified in the compensation award is attained, even if the payment or grant of the compensation occurs after the end of that period.
- (c) **“Financial reporting measures”** are measures that are determined and presented in accordance with the accounting principles used in preparing the Company’s financial statements, and any measure that is derived wholly or in part from such measures. Financial reporting measures also include stock price and total stockholder return (TSR).
- (d) Equity awards that vest exclusively upon completion of a specified employment period, without any performance condition, and bonus awards that are discretionary or based on subjective goals or goals unrelated to financial reporting measures, **do not** constitute incentive-based compensation.

Policy Applicable to Executive Officers. For purposes of this Policy, “executive officer” means the Company’s chief executive officer, chief financial officer and all other Section 16 officers.

Company’s Obligation to Recover Compensation. In each instance where all three of the following factors exist:

- a) the incentive-based compensation (or the vesting of such compensation) was based upon the achievement of financial results, as reported in a Form 10-Q, Form 10-K or other report filed with the Securities and Exchange Commission (“SEC”), that are required to be restated to correct an accounting error due to material noncompliance with any financial reporting requirement under the federal securities laws, including any required restatement to correct an error in previously issued financial statements that is material to the previously issued financial statements, or that would result in a material misstatement if the error were corrected in the current period or left uncorrected in the current period;
- b) a lower payment or award would have been made to such executive officer (or lesser or no vesting would have occurred with respect to such award) based upon the restated financial results; and
- c) the need for the restatement was identified within three completed fiscal years after the date of the first public issuance or filing of the financial results.

The Company will seek to reasonably promptly recover from each current and former executive officer of the Company the portion of any incentive-based compensation (whether cash or equity, including stock options awarded as compensation) received by such executive officer for or during each of the restated periods that is greater than the amount that would have been received had the incentive-based compensation been determined based on the restated amounts, without regard to any taxes paid. If the incentive-based compensation is based on stock price or total stockholder return, the amount to be recovered by the Company must be based on a reasonable estimate of the effect of the accounting restatement on the stock price or total stockholder return upon which the

incentive-based compensation was received, and the Company must maintain documentation of the determination of that reasonable estimate and provide such documentation to Nasdaq.

The Company is obligated to recover erroneously paid or awarded compensation on a “no fault” basis, regardless of whether any misconduct occurred or of when (or if) the restated financial statements are filed. This obligation is without regard to an executive officer’s responsibility for the erroneous financial statements. A restatement is deemed to have occurred for purposes of determining what compensation is covered by the earlier of (i) the date the Company’s Audit Committee concludes, or reasonably should have concluded, that the Company is required to prepare an accounting restatement; or (ii) the date a court, regulatory or other legally authorized body directs the Company to prepare an accounting restatement.

The Company may, to the extent permitted by law, enforce an executive officer’s repayment obligation under this Policy by reducing any amounts that may be owing from time-to-time by the Company or any of its subsidiaries to such officer or employee, whether as wages, severance, vacation pay or in the form of any other benefit or for any other reason.

Exceptions to Policy. The Company is not obligated to recover compensation under this Policy if the Compensation Committee determines that recovery of an executive officer’s compensation would be impracticable and one of the following three conditions is satisfied:

- (a) the direct expense paid to a third party to assist in enforcing the Policy would exceed the amount to be recovered (before doing so, the Company must make a reasonable attempt to recover the erroneously awarded compensation, document such reasonable attempt and provide that documentation to Nasdaq);
- (b) recovery of the compensation would violate the executive officer’s home country law, if the law was adopted prior to November 28, 2022; or
- (c) recovery of the compensation would likely cause an otherwise tax-qualified retirement plan, under which benefits are broadly available to employees, to fail to meet the requirements of Sections 401(a)(13) or 411(a) of the Internal Revenue Code and regulations thereunder.

Authority under Policy. The Audit Committee shall have full and final authority to make the determination set forth in Section 2(b) (ii) above, and the Compensation Committee shall have full and final authority to make all other determinations under this Policy.

Effective Date of Policy. This Policy shall apply to incentive-based compensation that is approved, granted or awarded on or after the Effective Date that results from attainment of a financial reporting measure based on or derived from financial information for any fiscal period ending on or after the Effective Date. From and after the Effective Date, each award agreement or other document setting forth the terms and conditions of any incentive-based compensation shall include a provision incorporating the requirements of this Policy.

Additional Remedies. This Policy does not limit any other remedies the Company may have available to it in the circumstances, which may include, without limitation, dismissing an employee or initiating other disciplinary procedures. The provisions of this Policy are in addition to (and not in lieu of) any rights to repayment the Company may have under Section 304 of the Sarbanes-Oxley Act of 2002 (applicable to the Chief Executive Officer and Chief Financial Officer only), and Section 10D of the Securities Exchange Act of 1934, as amended, and other applicable laws.

No Indemnification. Notwithstanding anything to the contrary in any other policy of the Company or any agreement between the Company and an executive officer, no executive officer shall be indemnified by the Company against the loss of any erroneously paid or awarded compensation.

Disclosure of Policy. This Policy will be summarized and disclosed each year in the proxy statement for the Company's annual meeting of stockholders. The Company will also file this Policy as an exhibit to its Exchange Act annual report.
