

Tiger AI x Ascend Consulting

Breaking into the US Solar Panel Industry:

*Market Analysis and Strategy for
Launching Data Centers*



Meet the Team



Joy Zhang
IEOR | 3rd Year



Amanda Lee
Data Science | 3rd Year



Eric Kim
Econ | 3rd Year



Justine Xie
Econ | 4th Year



Hannah Ho
Econ | 3rd Year



Tasnima Proma
Pre-Law | 3rd Year



Varun Gudla
Computer Science | 4th Year

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Market and Industry Analysis



Industry Analysis: *Solar Energy and Data Centers*

Solar Energy Industry Overview

- **Rapid Growth:** U.S. solar capacity set to reach 352 GW by 2030, fueling global expansion. (IRENA, IEA)
- **Leading Renewable Source:** Solar now accounts for 30% of global renewable electricity, overtaking hydropower and wind. (IEA)
- **Key U.S. Markets:** Utility-scale solar dominates with 66% of capacity as of Q1 2024; California, Texas, and Florida lead with favorable conditions and incentives. (Deloitte US, IEA)

Data Center Market

- **Surging Demand:** U.S. data center capacity to triple from 25 GW (2024) to 80 GW by 2030, driven by AI's rising power needs. (Deloitte US, IEA)
- **Sustainable Leaders:** Equinix, Iron Mountain, and Microsoft (with \$10.5B in renewable investments) are advancing green data centers. (Deloitte US, IRENA)
- **Power & Investment:** Data center energy use to rise 5-7x by 2030; \$22B invested in renewables for data centers in 2024 alone. (IEA, Deloitte US)

Data Centers and Market Background

Current Trends:

Renewable Energy Adoption:

Tech giants like Google, Microsoft, and Amazon lead in renewable energy for data centers. Microsoft aims to be **carbon negative by 2030**

AI's Energy Demand:

Rising AI deployments drive energy needs, creating **opportunities** for renewable providers to **supply clean energy**.

Challenges:

Energy Supply and Infrastructure:

Data center growth outpaces grid upgrades, **complicating renewable integration and reliability**

Investment & Competition:

Green data center investments are projected to reach **\$1 trillion within five years**

Opportunities:

Strategic Partnerships:

Partner with renewable providers (e.g., NextEra, First Solar) for sustainable power

Geographical Focus:

Launch in Southern California and Texas for **favorable climate, tax incentives, and solar/wind infrastructure**

As power transmission becomes constrained in primary markets, leading players are moving to secondary and emerging markets.

Three tiers of US energy markets

Primary markets

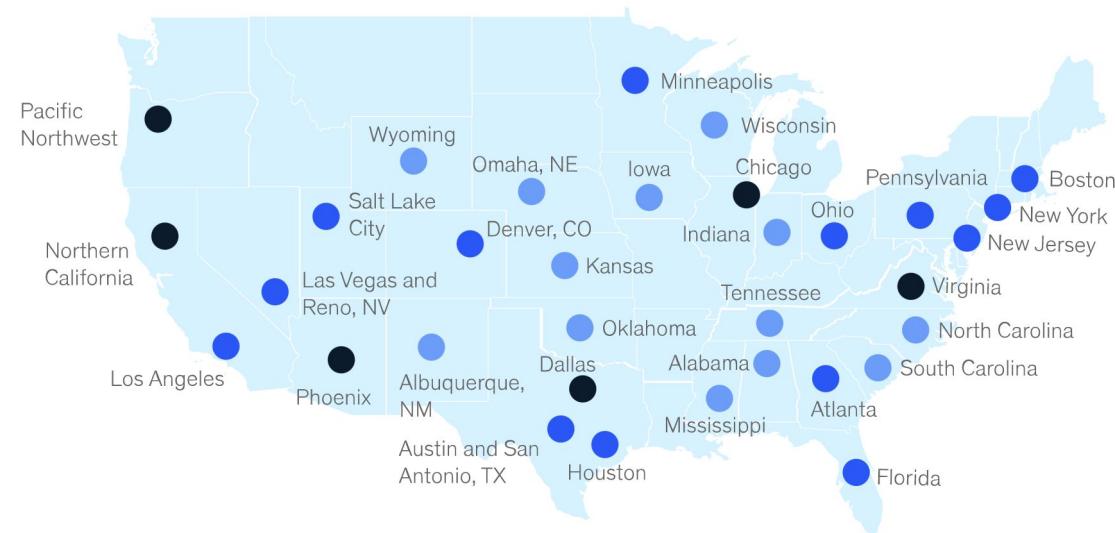
Large existing demand
of more than ~800 MW

Secondary markets

Relatively smaller demand
but typically high growth

Emerging markets

Recent hyperscale activity because of cheap and sustainable
or cleaner power, with negligible co-location presence



Renewable Energy Product Background

Challenges

Grid Integration & Storage:

Integrating sources like wind and solar into grids poses challenges due to their **weather dependency**. Storage and high costs of integrating remote renewables into urban grids add **complexity**. (Deloitte US, ICL)

Storage Capacity Limitations:

Limited energy storage leads to significant wastage; e.g., **over 2.6 million MWh of solar power** wasted in CA in 2024. (ICL)

Unique Perspectives:

Decentralization & Microgrids:

Hybrid microgrids powered by multiple renewable sources promote **local energy independence** and help balance **the grid during peak times**. (ICL, Our World in Data)

AI Optimization:

AI tools enhance renewable energy management by **predicting consumption, optimizing grid operations, and stabilizing supply**. (Deloitte US, IEA)

Commonalities:

Decarbonization Goals:

Both public and private sectors are **increasingly committed to decarbonization, driving investment in renewables**. (Deloitte US, IEA)

Corporate Adoption:

Major corporations (e.g., Google, Microsoft) are securing clean energy through **Power Purchase Agreements** to support their operations. (Deloitte US, IRENA)

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Key Competitors and Case Studies



Leading Competitors — RWE (1/2)

Background:

Based in Essen, Germany
Market Cap: \$25.5B

Significance :

Leader in European green energy market, but successfully entering American and Asian markets

- Two 15- year PPAs with...
 - Microsoft (446MW)
 - Meta (274MW)

Strengths	Weaknesses	Opportunities	Threats
<p>Strong European Market Position</p> <p>- <i>Reputed</i> as one of Europe's largest energy companies provides RWE with collateral entering the American energy market</p> <p>Diverse Energy Portfolio</p> <p>- <i>Transitioned</i> from coal to renewables in wind and solar power → more energy sources minimizes risk</p> <p>“Growing Green” and Investments</p> <p>- <i>Raised</i> \$2B for projects and “Growing Green” program – investment into renewable energy, batteries, flexible generation and hydrogen projects</p>	<p>High Capital Demands</p> <p>- <i>Shifting</i> from coal to its new renewable energy created a huge issue in short-run profitability</p> <p>- Newer projects that RWE has undertaken is high costing</p> <p>Financial Instability</p> <p>- With a <i>reliance</i> on government incentives as funding for projects and operations, a policy change may impact financial stability</p>	<p>Growing Demand of Products/Services</p> <p>- Increased demand indicates increased room for opportunities/growth for RWE</p> <p>Green Hydrogen Development</p> <p>- RWE's early steps of investment into green hydrogen provides an advantage</p>	<p>International Resources</p> <p>- RWE sources their materials domestically and internationally → while this diversification has its advantages, it may pose as an issue if any disruption occurs</p> <p>Global Market Competition</p> <p>- Due to RWE's reach across multiple countries and growing competition within the energy sector, RWE faces a larger number of competitors</p>

Leading Competitors — SB Energy (2/2)

Background:

Based in San Francisco, CA, USA
Owned by SoftBank Group & Ares Climate
Revenue: \$365M

Significance :

Orion Belt Project (875MWdc)

- Orion I, Orion II, Orion III – powering Dallas
- ~ 1.3M solar modules
- Oct 28, 2024: PPA w/Google – purchasing 85% SB's solar energy

Strengths	Weaknesses	Opportunities	Threats
<p>Strong Backing/Positioning</p> <ul style="list-style-type: none">- Backed by SoftBank ~ access to resources for expansion/growth- Established trust (via partnerships and agreements) with reputable American companies <p>Commitment to Community/Domestic</p> <ul style="list-style-type: none">- Supports domestic industries, thereby spurring economic growth	<p>High Capital Demands</p> <ul style="list-style-type: none">- Large scale projects require extensive funding and, especially with SB Energy's large clientele- Can get very expensive and risky <p>Financial Instability</p> <ul style="list-style-type: none">- Same as RWE: With a reliance on government incentives as funding for projects and operations, a policy change may impact financial stability	<p>Growing Demand of Products/Services</p> <ul style="list-style-type: none">- Same as RWE: Increased demand indicates increased room for opportunities/growth for SB Energy <p>Technological Partnerships</p> <ul style="list-style-type: none">- More "collaborations" with other American companies (and even communities) establishes a reputable reputation- Building a great basis for client growth and attraction	<p>Commitment to Community/Domestic</p> <ul style="list-style-type: none">- With a focus on domestic manufacturing and work, arising local issues may cause more problems <p>Market Competition</p> <ul style="list-style-type: none">- Growth in market potential creates a rise in interested competitors

Growing Competitors — GameChange Solar

Background:

Based in Norwalk, CT, USA
Backed by Barron Group Holdings
Revenue: \$75M

Significance :

Innovative in their optimization of energy trackers and “tilters,” following the movement of the sun to maximize energy generation

- Originating in the United States, but expanding globally (Europe, Asia, and South America)

Strengths	Weaknesses	Opportunities	Threats
<p>Cost-Effective</p> <ul style="list-style-type: none">- Affordable and quick to assemble due to its single-axis tracking mechanism (compared to dual)- Creates a lower cost in production and implementation- There is also a higher yield per dollar invested due to its adjustment to sun movement <p>Global Reach and Diverse Market</p> <ul style="list-style-type: none">- Establishing for itself a global presence, entering underserved markets, like India	<p>Dependence on Material Costs</p> <ul style="list-style-type: none">- Increases in raw material costs may impact the cost-effectiveness of their models <p>Lack of Product Diversification</p> <ul style="list-style-type: none">- Primarily focused on mounting and tracking systems → may pose as a limitation when compared to its competitors	<p>Growing Demand in “Underserved” Markets</p> <ul style="list-style-type: none">- Meeting the underserved energy demands in global markets- Making use of the lack of formidable competition, and penetrating into these markets with ease and prominence <p>Product Advancements</p> <ul style="list-style-type: none">- Utilizes sensors, weather forecasting, and smart algorithms in integrating smarter technology for improved efficiency	<p>Product Similarities</p> <ul style="list-style-type: none">- These “tilters” and products offered at GameChange Solar isn't unique to just GameChange- Many other companies like NextTracker, Array Technologies, and Big Sun Group have products similar to this



Microsoft

Investment: Microsoft Case Study

Deal

Microsoft signed a **\$10 billion deal** with Brookfield Asset Management

Brookfield will deliver **10.5 gigawatts** of renewable energy for Microsoft

Reason

Deal is to address the growing demand for **artificial intelligence and data centers**

The U.S. faces surging electricity demand as the advent of AI coincides with the **expansion of semiconductor and battery manufacturing** in the U.S.

Significance

Largest single electricity purchase agreement between two corporations

The **10.5 gigawatts** of renewable capacity is **3 times larger** than the **3.5 gigawatts** of electricity consumed by data centers in Northern Virginia, the **largest data center market** in the world



Competitor: Exowatt Case Study

Background

Exowatt is a **next-generation** renewable energy company

Founded in 2023, Exowatt's mission is to make sustainable renewable energy always available and almost free

Product

Exowatt's unsubsidized energy cost is **\$0.04** per kilowatt hour

Unique Energy Collection: Exowatt P3's optical collection system features cutting-edge technology: akin to using a magnifying glass to focus the sun's rays

Energy Storage: Stored in a heat battery composed of a clay and ceramic composite material

Projections

Exowatt's first data center project will go live in **West Texas in 2024**

By 2025, this project is projected to reach 50 megawatts

In real-world application, the system can save up to **\$35 million in energy costs**

Competitor: Coreweave Case Study

Background

Founded in 2017

Originally focused on crypto and blockchain applications

CoreWeave has shifted to AI infrastructure and now plans to operate 28 data centers by the end of 2024

Specialization

CoreWeave builds cloud solutions for compute-intensive use cases:

- Machine learning and AI, VFX and rendering, life sciences, the Metaverse, and real-time streaming

Up to **35 times faster and 80% less expensive** than the large, generalized public clouds

Data Center Locations

The company currently lists three data center regions:

- US East in Weehawken, New Jersey, US West in Las Vegas, Nevada; and US Central in Chicago, Illinois

Investment Tax Credit: *(Federal Solar Tax Credit)*

Eligibility:

1. Solar system must be located in the **United States or U.S. territories**
2. Solar system must use **new and limited previously used** equipment
3. **Solar system must not be leased** to a tax-exempt entity (e.g., a school)
 - a. tax exempt entities are eligible to receive the ITC in the form of a direct payment.

Benefits:

1. **Reduces** the federal income tax liability for a percentage of the cost of a solar system that is installed during the tax year
2. Solar systems that are placed in service in 2022 or later and begin construction before 2033 are eligible for a **30% ITC**

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Data Center Strategies



Client's Current Technologies:

Dual Axis

Pros:

- Dual-axis trackers can increase energy production by about **40%**
- Dual-axis tracking aims to **keep panels aimed perpendicular to sunlight** from any angle

Cons:

- The solar tracker **may not work accurately** when the sky is covered in clouds or smog
- They are **more prone to technical glitches** due to complexity and require regular maintenance for proper functioning

Molten Salt

Pros:

- Molten salts can store up to **600°C** of heat for extended periods of time
- Molten salt storage systems can be **scaled** up for large operations and are suitable for utility-scale applications

Cons:

- The **upfront costs** for setting up molten salt storage systems (infrastructure and installation) can be high
- Molten salts can be **corrosive** to certain materials, necessitating specialized, often more expensive, materials for containment and heat exchange

Heat Dissipation: Alternative Recommendations

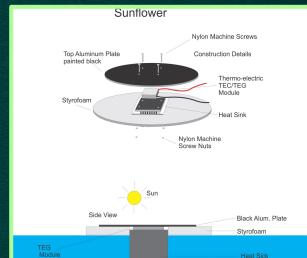
Seebeck Generators

Pros:

- Significantly increase solar efficiency up to 60% theoretically
- More viable in climates with less sun exposure
- Solid state device → no moving parts and require little to no maintenance

Cons:

- Cost of Seebeck Generators are currently expensive due to material and designs
- Practical implementations have yet to reach up to 60% efficiency



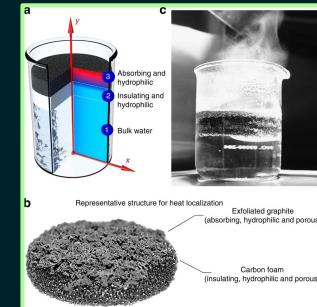
Steam Engine

Pros:

- Researchers at MIT and NREL have designed a heat engine, a (TPV) cell, without movable parts
- Converts heat to electricity with over 40% efficiency
- Generate electricity from a heat source of between 1,900 - 2,400 degrees Celsius

Cons:

- Producing large TPV cells would require changes to current PV manufacturing, increasing costs
- The technology has only been executed on small scales



Current Location and Recommendations:

Current Plan:

Riverside, Southern CA



Recommendations:

Northern
Virginia

- Largest data center market in the United States and is close to the capital
- Over 300 data centers and 3,945 megawatts (mW) of multi-tenant commissioned power
- Average between \$0.06 to \$0.08 per kilowatt-hour (kWh)

Texas

- Provides a logistical advantage for data centers
- Energy grids in Texas = officially the greenest in the United States
- Recent years have seen considerable investment in solar, wind, and battery-storage facilities → leading to a much lower emissions profile

Hillsboro,
Oregon

- Provides an attractive property tax abatement program and low-cost renewable energy utility programs
- Offers proximity to international subsea cable networks that reduce latency between the U.S. and high-growth markets in the Asia-Pacific region

Phoenix,
Arizona

- Low latency connectivity from major tech metros on the West Coast to fast-growing markets in the Southwest
- Benefits from inexpensive power, low risk of natural disasters, affordable land, and available tax incentives → attracts major cloud providers like Apple, Microsoft, and Google

Scalability of Manufacturing:

Current Spot:
Mexico



Recommendations:

Georgia

- A national leader in advanced manufacturing
- Outpacing the United States in 10-year GDP growth in the manufacturing of products including machinery, electrical equipment and components, and fabricated metals

**Phoenix,
Arizona**

- A leading city in the manufacturing resurgence due to its strategic location + business-friendly environment.
- Among the top 10 most industrial cities in the US, with around 1,446 companies and more than 93,000 workers

**Austin,
Texas**

- A central hub for manufacturing growth → provides easy access to major markets across the U.S.
- Austin: rapidly becoming a manufacturing powerhouse; tech-friendly environment + innovative culture → supports a robust ecosystem for manufacturing, particularly in electronics and semiconductor industries

**Chattanooga,
Tennessee**

- Seen a manufacturing revitalization in recent years
- Specializing in advanced manufacturing and logistics
- The city's GDP has grown by an average of 4% annually over the past five years → as of 2022, it stands at \$34 billion

04

Financial Forecasting



Overview of US Solar Energy Market:

Current



Projected

Q1 2024:

t

Utility-scale solar installations accounted for 9.8 GW of capacity, which was more than the annual total for this segment as recently as 2019

Q2 2024:

The total installed solar capacity in the U.S. reached **209.8 GW**

Utility-scale solar dominated the overall solar market, accounting for over 66.68% of the revenue in 2022

Utility-scale solar installations increased 66% from Q1 2022 to Q1 2023

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5 years projection:

- The total U.S. solar energy market is forecast to reach **352 GW**
- Growing at a CAGR of **16.48%** during the forecast period

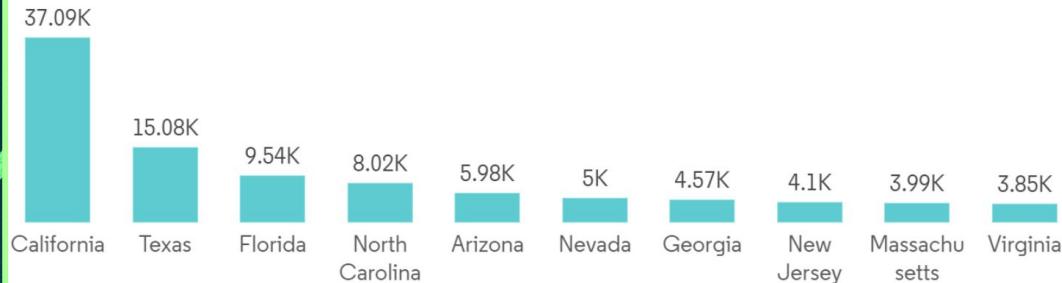
8 years projection:

By 2032, the U.S. solar power market is estimated to reach **\$103.96 billion**

Solar Energy Market by State: *California*

California

United States Solar Energy Market: Leading States Based on Cumulative Solar Photovoltaic Capacity, in MW, United States, as of Q2 -2022



Has by far the **most installed capacity of PV** power of any state in the United States

- With a total solar power capacity of over 37 gigatonnes as of the second quarter of 2022

Ranks second in the U.S. for operational data center power capacity, with approximately **2.3 GW**

Has the **second-largest installed base of renewable capacity** in the U.S., with 18.4 GW of wind and solar

Has a statewide goal of 100% carbon-free energy by 2045
(*the 100 Percent Clean Energy Act of 2018*)

Estimations of Energy Revenue: A Top-Down Approach

Solar Energy Production:

In 2023, California generated 68,816 gigawatt-hours (GWh) of electricity from solar power
→ represents a 9% increase from 2022

Percentage of Total Electricity: Solar energy provided **28%** of California's total electricity generation when both utility-scale and small-scale solar are included

Utility-Scale Solar: Utility-scale solar energy alone supplied **16%** of the state's total electricity net generation

Estimate the total electricity consumption in California for 2023:

$$68,816 \text{ GWh} / 0.28 = 245,771 \text{ GWh}$$

$$\text{Power KW} = 245,771 \text{ GWh} \times 1,000,000 \text{ KW} = 245,771,000,000 \text{ kWh}$$

In 2023, California's average industrial electricity rate for the same period was **17.70 cents/kWh**
= 117.2% higher than the US average of 8.15 cents/kWh (excluding California)

$$\text{Revenue (2% market share)} = 245,771,000,000 \text{ kWh} \times 17.70 \text{ cents/kWh} \times 0.02 = \$869,949,340$$

Calculating the cost at **5 cents per KW:**

$$\text{Cost (2% market share)} = 245,771,000,000 \text{ kWh} \times \$0.05/\text{KWh} \times 0.02 = \$245,771,000$$

$$\text{Maximum Profit} = \$869,949,340 - \$245,771,000 = \$624,178,340$$

Average Cost of Building Data Center

20%

Land and Building Shell

- Land: \$25-\$75 per gross square foot
- Building shell: \$80-\$160 per gross square foot
- Total powered shell: \$105-\$235 per gross square foot

45%

Electrical System

- Estimated range:
- \$280-\$460 per gross square foot
- Components include:
- Electrical backup generators
 - Batteries
 - Power distribution units

15%

HVAC/Mechanical/Cooling Systems

- Estimated range:
- \$125-\$215 per gross square foot
- Components include:
- Computer room air conditioners (CRAC)
 - Computer room air handlers (CRAH)

20%

Building Fit-Out

- Estimated range:
- \$100-\$200 per gross square foot
- Components Includes:
- Lobby/entrance
 - Meet-me room (MMR)
 - Shipping & receiving area

Total Development Cost: \$625 (Low Estimate) ~ \$1,135 (High Estimate) per gross square foot

- A small data center (5000 square feet) :\$3,125,000 - \$5,675,000
- A full scale data center (100,000 square feet): \$62,500,000 - \$113,500,000

Competitor Deepdive:

Background:

- Founded in 2012 and is based in Norwalk, Connecticut with a research and development center in Brimfield, Massachusetts
- GameChange Solar Corporation engages in the manufacturing of fixed tilt and tracker solar racking systems
- It provides Genius Tracker, a high-power-producing and fast-installing solar tracker system; MaxSpan, post-driven fixed tilt systems; and MaxDensity, a tilt structure

Recent Developments:

- Aug, 2024: GameChange Solar Signs Tracker Supply Contract with Sterling & Wilson for 750 MW Project in India
- Jun, 2024: GameChange Solar Begins Delivery for Genius Tracker Site with 158 Mph Design Wind Speeds
- Apr, 2024: GameChange Solar Secures Over 500 MW of Solar Projects in Southern Africa



Competitor Financial Statement:



The average annual growth rates for GameChange Solar from 2017 to 2020:

Revenue: 77.74%

EBITDA: 137.13%

Net Income: 207.19%

Income Statement

Thousands, USD

	Trend 5 TTM	Dec 2017	Dec 2018	Dec 2019	Dec 2020
Total Revenue	↑	65,000	160,000	210,000	365,000
Revenue % Growth	↓		146.15%	31.25%	73.81%
EBITDA (Normalized)	↑	3,000	16,000	25,000	40,000
EBITDA Margin	↑	4.62%	10.00%	11.90%	10.96%
Net Income (Normalized)					
Net Profit Margin	↑	1.54%	6.88%	7.62%	7.95%

Created on: 22-Oct-2024 | Source: PitchBook Data

Competitor Deepdive:

ARRAY
TECHNOLOGIES

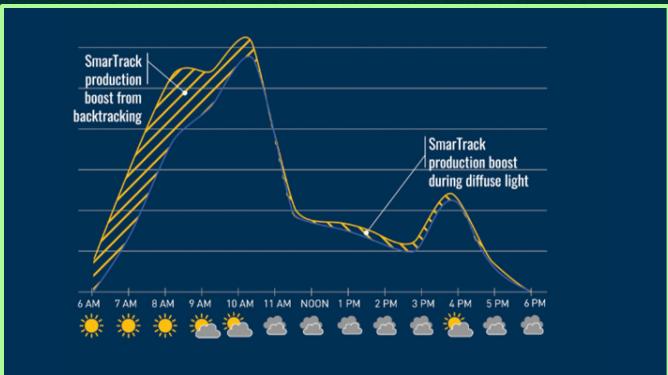
Background:

- Manufactures ground-mounting tracking systems used in solar energy projects in the United States, Spain, Brazil, Australia, and internationally
- Its products portfolio includes DuraTrack HZ v3, a single axis tracker; Array STI H250 that delivers a lower levelized cost of energy with tracker system; Array OmniTrack; and SmarTrack, a software product that uses site-specific historical weather and energy production data in combination with machine learning algorithms to identify the optimal position for a solar array in real time to enhance energy production



Recent Developments:

- Array Technologies Unveils SkyLink Tracker System to Maximize Solar Efficiency in Extreme Weather & Reduce Costs



Competitor Financial Statement:



The average annual growth rates for Array Technologies from 2020 to 2023:

Revenue Growth Rate: 21.79%

Gross Profit Growth Rate: 27.02%

EBITDA Growth Rate: 19.96%

EBIT Growth Rate: 21.28%

For the Fiscal Period Ending	12 months			
	Dec-31-2020A	Dec-31-2021A	Dec-31-2022A	Dec-31-2023A
Currency	USD	USD	USD	USD
Total Revenue	872.7	853.3	1,637.5	1,576.6
Growth Over Prior Year	34.7%	(2.2%)	91.9%	(3.7%)
Gross Profit	202.8	68.3	212.7	415.6
Margin %	23.2%	8.0%	13.0%	26.4%
EBITDA	149.1	(10.7)	69.5	257.4
Margin %	17.1%	(1.2%)	4.2%	16.3%
EBIT	121.7	(22.0)	(17.0)	217.1
Margin %	13.9%	(2.6%)	(1.0%)	13.8%

Summary of The Opportunities in the U.S. Solar Market

U.S. Solar Market Growth:

Rapid expansion: Projected to reach 352 GW in the next five years

High revenue potential: Valued at \$103.96 billion by 2032

California's Leadership in Renewable Energy:

Leading state with ambitious 100% carbon-free goal by 2045

Solar provides 28% of California's electricity, with over 37 GW of solar capacity installed

The Opportunity for Big Sun:

High-growth benchmarks: Follow success paths of GameChange Solar and Array Technologies

Strategic investment in advanced tech aligns with U.S. market demand

Clear path for Big Sun to establish a significant footprint in the U.S. renewable energy market

05

Funding Opportunities



Federal and State Grant Opportunities

Grant-Making Agency	ENERGY.GOV Office of ENERGY EFFICIENCY & RENEWABLE ENERGY	EDA U.S. ECONOMIC DEVELOPMENT ADMINISTRATION	STATE OF CALIFORNIA ENERGY COMMISSION
Description	Offers competitive solicitations / funding opportunity for projects that lower the cost of clean energy tech / promote clean energy	Offers funding for projects that create jobs and economic growth	Offers solicitations for projects that advance California's transition to clean energy
Specific Programs	Solar Energy Technologies Office (SETO)	Build to Scale; Public Works and Economic Adjustment Assistance	N/A

Grant Examples

GFO-23-313

Deployment of Decarbonization Technologies and Strategies for California Industrial Facilities

Agency

California Energy Commission

Submission Deadline

December 20

Maximum Funding

\$5,495,716

“deploy advanced decarbonization and/or grid support technologies at California industrial facilities”

PWEAA2023

FY 2023 EDA Public Works and Economic Adjustment Assistance Programs

Agency

US Economic Development Administration

Submission Deadline

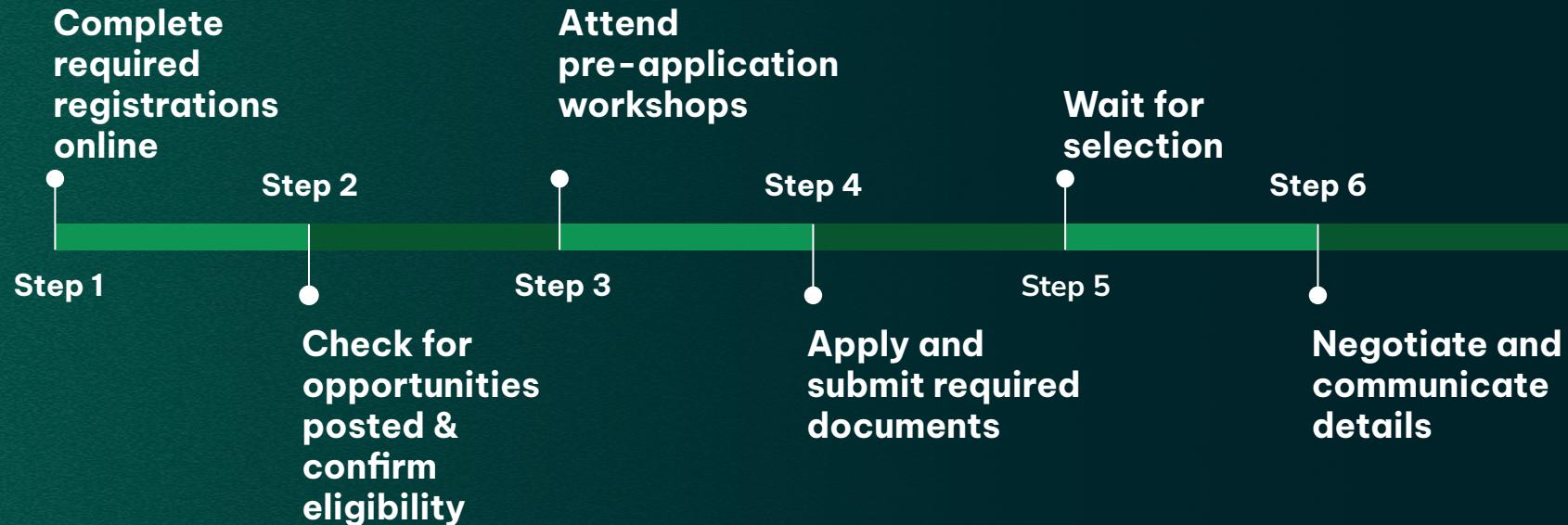
Closed

Maximum Funding

\$30,000,000

“support the implementation of economic development strategies... to advance economic prosperity in distressed communities”

General Grant Application Steps



Personas: Philanthropic Foundations

Ex: TomKat Foundation



Foundation Assets: \$500 million

Background: The TomKat Foundation, founded by Tom Steyer and Kat Taylor, is committed to addressing issues in climate change, sustainable agriculture, and social equity. The foundation has supported a range of environmental and clean energy initiatives, focusing on long-term systemic solutions to combat climate change and create a resilient economy.

Interests:

Climate resilience

Sustainable energy tech

Equity and access

Why They Would Invest: The TomKat Foundation's commitment to climate change solutions aligns closely with the goal of establishing solar-powered data centers. The foundation would see value in data centers that not only reduce carbon emissions but also demonstrate a model for sustainable energy usage in tech infrastructure in underserved areas

Approach Strategy:

- 1) Emphasize how solar-powered data centers **support clean energy + job creation in underserved communities**
- 2) Highlight the environmental sustainability angle, focusing on how this project fits their larger global agenda
- 3) Present the project as a sustainable solution reducing dependence on fossil fuels, offering **lasting environmental benefits in line with TomKat's vision** for systemic climate impact

Personas: Philanthropic Foundations

Ex: Gates Foundation

BILL & MELINDA
GATES foundation

Foundation Assets: \$67 billion

Background: The Gates Foundation, led by Bill and Melinda Gates, is one of the largest philanthropic organizations in the world, with a strong focus on health, poverty reduction, and clean energy solutions. Their investments often aim for large-scale, transformative projects.

Interests:

Sustainable development

Technological advancements

Global impact

Why They Would Invest: The Gates Foundation has already shown interest in renewable energy projects. Solar-powered data centers that could make computing more sustainable would align with their goals for sustainable global development.

Approach Strategy:

- 1) Emphasize the potential to democratize technology by making **cloud computing and AI more sustainable and accessible.**
- 2) Highlight the environmental sustainability angle, focusing on how this project fits their larger global agenda.
- 3) Offer **long-term collaboration** to expand solar-powered data center models to developing countries.

Personas: Philanthropic Foundations

Ex: Walton Family Foundation

Foundation Assets: \$4.5 billion

Background: The Walton Family Foundation is a philanthropic organization led by the heirs of Walmart founder Sam Walton. The foundation has taken an interest in conservation, education, and renewable energy, which aligns with our project

Interests:

Environmental sustainability

Energy innovation

Community development



Why They Would Invest: The Walton Family Foundation has the financial resources and the interest in renewable energy that aligns with the solar-powered data center project. They would likely appreciate the community and environmental benefits.

Approach Strategy:

- 1) Emphasize the **local and community impact** of solar-powered data centers, including job creation and sustainable growth.
- 2) Show how the project aligns with their **conservation and environmental goals**. Offer **naming rights** or public recognition of their role in the initiative to help further their environmental advocacy.
- 3)

Personas: Environmental Advocates

Persona- Eco Green

Net Worth: \$3.5 billion

Background: Eco made her fortune in the biotech industry, founding a series of successful companies focused on sustainable health solutions. Known for her forward-thinking vision, she is an outspoken advocate for renewable energy and sustainable technologies. She has a strong interest in investing in projects that have measurable environmental impact.

Interests:

Renewable energy

Technology for good

Impact investing

Notable Individuals like Eco:

Tom Steyer: Environmentalist, Philanthropist, and Former Hedge Fund Manager

Laura Greenfield: CEO & Environmental Advocate

Rich Lechner: advises + invests RE startups

Why They Would Invest: Eco views solar-powered data centers as an innovative solution that aligns perfectly with her sustainability goals. The integration of AI and solar energy also positions her as a leader in a cutting-edge sector that bridges both technology and environmental protection.

Approach Strategy:

- 1) Share stories of communities directly affected by climate change and pollution, framing the project as a part of the solution to these pressing issues
- 2) Provide advisory roles in decision-making, enhancing her influence over the project/how it is expanded globally.
- 3) Propose an opportunity to fund research, scholarships, or internships within renewable energy fields, connecting to broader educational and sustainable development initiatives

Personas: Tech Entrepreneur/Venture

Capitalist Persona-V Lee

Net Worth: \$2 billion

Background: V founded a successful cloud computing company and later transitioned into venture capital, where he focuses on investing in AI, machine learning, and green technology startups. He's passionate about pushing the boundaries of what AI can achieve while being mindful of its environmental footprint.

Interests:

AI and data-driven innovation

Green technology

Corporate social responsibility

Notable Individuals like Eco:

Katherine Collins: Head of Sustainable Investing at Putnam Investments

Emily Kirsch: Founder and CEO of Powerhouse Ventures

Sunil Paul: Founder of Spring Ventures

Why They Would Invest: V is likely drawn to the dual innovation in both AI and renewable energy sectors. Investing in solar-powered data centers helps him combine his interests in AI and green tech, supporting infrastructure that's critical to the future of tech.

Approach Strategy:

- 1) Emphasize the tech side of TigerAI, discussing the cutting-edge AI that will run these data centers
- 2) Present scalability and innovation potential, which could be important for his venture fund
- 3) Offer strategic partnerships or investment opportunities where Eco can be involved in further technological innovations

06

Recommendation and Next Steps



Recommendations and Next Steps

- | | |
|----|--|
| 01 | Complete online registrations for grant platforms and start checking for relevant opportunities (grants, investments) |
| 02 | Monitor and manage development costs closely to maintain high profit margins and competitive production cost efficiency |
| 03 | Delve into competitor analysis to compare and weight the pros and cons of them respectively to understand our positioning in entering the US market |
| 04 | Look into alternatives for establishing data center and manufacturing locations in case of future expansion or side action plans |
| 05 | Researching and exploring other alternative methods to expand and improve upon Big Sun's existing products (ex: utilizing Seebeck Generators for heat dissipation) |

Sources:

Financial Forecasting:

- [United States Solar Energy Market Report](#)
- [Solar Market Insight Report](#)
- [Carbon Neutrality by 2045](#)
- [Average Cost of Building a Data Center](#)
- [Data Center Size](#)
- [Gamechange Solar](#)
- [Array Technologies](#)

Grant opportunities

- [California Energy Commission](#)
- [California Grant Portal](#)
- [US Economic Development Administration](#)
- [Office of Energy Efficiency and Renewable Energy](#)

[McKinsey industry analysis](#)

Sources:

Case studies:

- [Microsoft signs deal to invest more than \\$10 billion on renewable energy capacity to power data centers](#)
- [Exowatt Launches with \\$20 Million to Modernize Data Center Power for the AI Era | Business Wire](#)
- [Altman-Backed Startup Reveals Solar-Powered Solution for AI and Data Centers • Carbon Credits](#)
- [Exowatt Launches with \\$20 Million to Modernize Data Center Power for the AI Era - FinTech Futures](#)
- [Exowatt P3 Launched to Revolutionize Renewable Energy – Engineering.com](#)
- [CoreWeave and Bloom Energy Partner to Enhance AI Data Center Power Solutions](#)
- [CoreWeave to deploy Bloom fuel cells at Illinois data center - DCD](#)

Investment Tax Credit:

- [Federal Solar Tax Credits for Businesses | Department of Energy](#)

Sources:

Data Center Strategies:

- [What Is A Solar Tracker And Is It Worth The Investment?](#)
- [Is A Solar Tracking System Worth It? | EnergySage](#)
- [What is a Dual Axis Solar Tracker? Its Working, Benefits, And Cons](#)
- [The advantages and disadvantages of solar trackers — RatedPower](#)
- [Molten Salt Heat Energy Storage and Efficiency of Conversion of Heat to Electricity | NextBigFuture.com](#)
- [How Does Molten Salt Storage Work?](#)
- [United States Data Centers: Top 10 Locations in the USA - Dgtl Infra](#)
- [Why 2024 is the Right Time to Invest in Data Centers Across Texas – Cloudnium](#)
- [Texas Data Center Markets Are Booming | TRG Datacenters](#)
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- [Hillsboro Data Center Market: The Ideal Site for Sustainable Development - CBRE | DIRECT LINE](#)
- [Manufacturing in Georgia](#)
- [Manufacturing Hotspots: Leading U.S. Cities Driving Growth - Blue Signal Search](#)
- [Top 20 Most Industrial Cities in the US - Insider Monkey](#)
- [Top 20 Best Metros for Manufacturing in the U.S.](#)
- [Top Under-the-Radar Places for Manufacturing Plant Development](#)

Sources:

Competitor Analysis:

Game Change Solar:

- [GameChange Solar trackers to be 100% US-made in 2025](#)
- [GameChange Solar Surpasses 10 GW in Solar Projects Awarded in India for its Genius Tracker™ System](#)

SB Energy:

- [SB Energy's Orion Solar Belt begins commercial operations in US](#)
- [Google signs power purchase agreement with SB Energy Global](#)
- [SB ENERGY SECURES \\$2.4 BILLION FOR RENEWABLE ENERGY PROJECTS](#)
- [SB Energy commissions Texan solar projects to power Google data center operations](#)
- [One of the largest solar projects in the US opens in Texas, backed by Google](#)
- [Stem and SB Energy Announce Technology and Commercial Alliance to Advance AI-Enabled Energy Management of Utility Scale Renewables](#)
- [RWE signs two 15-year Power Purchase Agreements with Microsoft](#)

Heat Dissipation

- <https://news.mit.edu/2022/thermal-heat-engine-0413>
- <https://helioscsp.com/solar-heat-and-thermoelectric-generators/>

Thank you!

Any questions, comments or concerns