Ascent Solar Technologies, Inc.

Corporate Presentation

August 2025

Forward-Looking Statements

Certain statements in this presentation may constitute "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995.These forward-looking statements relate to a variety of matters, including, without limitation, statements related to the Company's expected sales opportunities in 2026 and 2027.

By their nature, forward-looking statements involve risks and uncertainties because they relate to events, competitive dynamics, and regulatory developments and depend on the economic circumstances that may or may not occur in the future or may occur on longer or shorter timelines than anticipated.

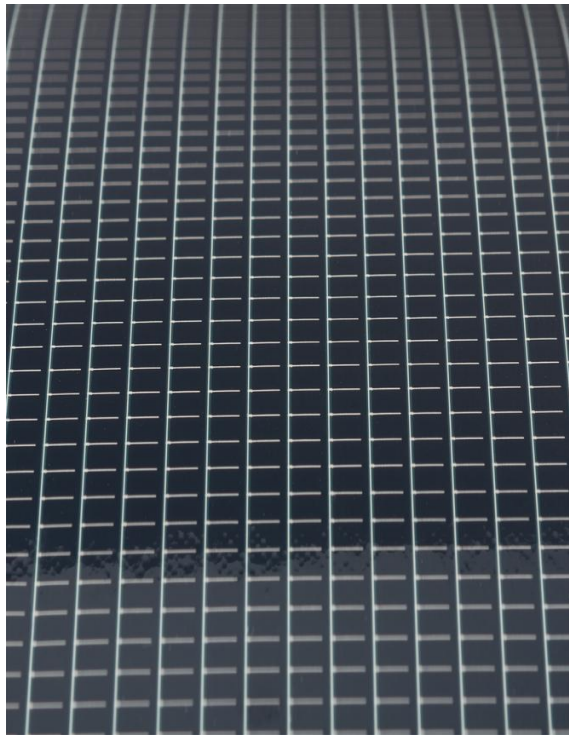
These forward-looking statements are made based on the current beliefs, expectations and assumptions of the management of Ascent and are subject to significant risks and uncertainty. Investors are cautioned not to place undue reliance on any such forward-looking statements. All such forward-looking statements speak only as of the date they are made, and Ascent undertakes no obligation to update or revise these statements, whether as a result of new information, future events or otherwise. Although Ascent believes that the expectations reflected in these forward-looking statements are reasonable, these statements involve many risks and uncertainties that may cause actual results to differ materially from what may be expressed or implied in these forward-looking statements. For a further discussion of risks and uncertainties that could cause actual results to differ from those expressed in these forward-looking statements, as well as risks relating to the business of Ascent in general, see the risk disclosures in the Annual Report on Form 10-K of Ascent for the year ended December 31, 2024 and in subsequent reports on Forms 10-Q and 8-K and other filings made with the U.S. Securities and Exchange Commission by Ascent.

In addition, even if our results of operations, financial conditions and liquidity, and the development of the industries in which we operate are consistent with the forward-looking statements contained in this presentation, they may not be predictive of results or developments in future periods.

This investor presentation provides basic information about Ascent. Because it is only a summary, this document does not cover all the information that should be considered before investing in our securities. You should read carefully the factors described in the "Risk Factors" section of our Annual Report and subsequent reports to better understand the risks and uncertainties inherent in our businesses and any forward-looking statements.

Ascent Solar Technologies, Inc. (ASTI)

Ascent Solar delivers lightweight, flexible and reliable solar power modules to the world's leading engineering organizations.



ASTI is the leading provider of feather-weight, flexible, monolithically-integrated thin-film solar modules for the Space/Near-space, UAV/Defense, Agrivoltaic and Specialty markets.

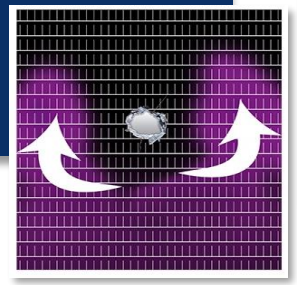
The revolutionary attributes and superior performance of ASTI's photovoltaic (PV) modules are made possible through a proprietary CIGS (Copper-Indium-Gallium-Selenium) on polyimide substrate process and continuous process and technology improvements.

ASTI's HQ and nameplate production facility is based Thornton, Colorado USA, where we have over a decade of manufacturing experience.

ASTI's Thin Film Outshines the Competition

Durable

- Patented cell design allows a greater area of the solar module to produce power.
- The proprietary design provides system redundancy and unchallenged durability – in the event of surface damage or partial light conditions, ASTI PV continues to generate power.



Reliable

- TRL 9 in 2023
- Low part count for modules and arrays drastically reduces points of failure and increases system and unit reliability
- ASTI's thin-film PV is durable and reliable making it a preferred method of generating renewable power in challenging environments like Space and near-Space.

Lightweight

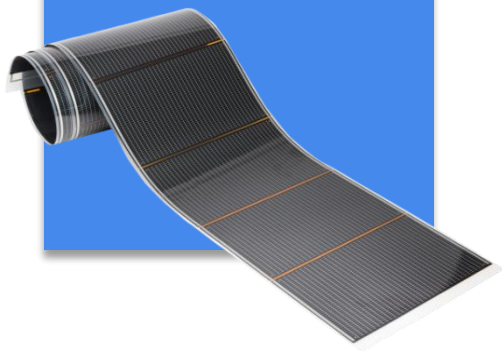
- ASTI panels are lighter than feathers and have a power to weight ration that makes them far superior to other solar products available for large scale use in space due to lower launch costs.

Fit for Purpose

- Simplified electrical and mechanical construction
- Customized cell shapes easily integrated into manufacturing process
- So lightweight, ASTI panels can be installed on satellites with minimal impact on flight performance.

Flexible

- Rollable-deployable configurations increase packing efficiency in launch vehicles (further lowers launch cost)
- >30⁰ radius of curvature – better than Crystalline and Gallium Arsenide technology.



ASTI PV vs Other Technologies

	Ascent SOLAR	Amorphous Silicon	Monocyrstalline & Polycrystalline	Gallium Arsenide
Highly Flexible	✓	✓	✗	✗
Shatterproof	✓	✓	✗	✗
Easy to customize Voltage & Current	✓	✓	✗	✗
Price per Watt per Kg	✓	✗	✗	✗
Non-Traditional Shapes Available	✓	✗	✗	✗
Long-term Power Stability	✓	✗	✓	✓
Specific Power	HIGH	LOW	MEDIUM	HIGH
Price Per Watt	$ $	$ $	$	$ $ $ $ $
Integration Complexity	EASY	EASY	DIFFICULT	MODERATE

30+ years of Awards & Validation

1990 - 2005

- Thin-film dev begins at Martin Marietta (1990), ITN Energy created (1992) to develop thin-film on polyimide

2005-2007

- Ascent Solar spun off from ITN (2005), New HQ & Factory opens (2007)

2010

Defence:

- Passed US Military Standard10 G

R&D 100 Magazine

- 100 Most Innovative Technologies

2011

Time Magazine

- 50 Best Innovations in the World

2014

UAV:

- Market Launch, Silent Flacon

2015

R&D 100 Magazine

- 100 Most Innovative Products

2016

Space:

- Selected by JAXA for PowerSolar Sail to Jupiter

2017

ISO

- ISO9001:2015 Quality Management manufacturing organization

2018

Space:

- Selected for NASA MISSE-X project

2021

SBIR Phase I

- Collaboration with Above Orbital on Phase I for AFRL

2023 to 25

TRL 9 & 15.7% Efficiency

- Achieved TRL 9 with Momentus Vigoride 6 Flight
- Technology Improvement to 15.7% with 1cm^2 cell

Investment Opportunity

Markets for ASTI's products have accelerated in the last 18 months and are expected to grow in the next 5 to 8 years. ASTI is in early discussions with several parties now, which could potentially materialize into more than $5 to 20 million in contracted sales by Year End FY 2026.

- **Targeted industry approach**
  - Aerospace and Space
  - DoD battlefield charging and hydrolyzers
- **Profitable high growth targeted markets**
  - Could generate $35 to $45 per watt for terrestrial and $40 to 75 per watt for space products
  - 2026 satellite power needs are estimated at 15 to 20 MW per year now and growing to +100 MW per year in the next 5 to 6 years with existing industry capacity at 8 to 12 MW
- **Recent manufacturing and operational improvements have generated higher efficiency**
  - Increased efficiency in CIGS technology from 10.8% to 15.7% due to addition of rubidium fluoride, ZnOS, and improved manufacturing processes
  - ASTI fully-encapsulated arrays are now generating more than a watt per gram of integrated array panel, creating a notable differentiator between Ascent and other solar manufacturers active in the space tech market
- **New Executive Team with turnaround experience focused on**
  - Elevated margin
  - High-growth industries

Sector: Aerospace/Space

Satellite Power

Solar Sail Development

High Voltage Solar

High Altitude Airships

Power Beaming

Space PV Market (Demand and Attributes)

- 2026 estimated space solar market demand is 15 to 20 of MW.
- The space solar market is expected to reach 80 to 100+ of MW per year of demand in the next 5 to 7 years
- Robust supply chain w/ minimal through puts
- Ultra-lightweight, superior module specific energy (2.1kW/kg)
- Demonstrated to be optimal for enduring the harshness of the space environment's radiation, vacuum temperature extremes, and other hazards.[1]

Competitor's Lack Capacity/Capability to Meet Market Need

Sales prospects have indicated that competing space PV providers currently have lead times exceeding 12 to 18 months and prices of $35 to $200 per watt with highest performance triple junction cells fetching more than $150 per watt.
The space industry's leading PV providers have an estimated 8 to 12 MW per year in total of annual production capacity
Inadequate supply chains for key materials such as gallium and arsenide, plus space rated cover glass are weaknesses/threats that ASTI's solution negates.

<u>The Space Industry presents a premium market opportunity with unmet customer demand where ASTI products are highly differentiated at +12.5% aerial efficiency, but 15% has to be met on production scale manufacturing for aerial efficiency</u>

The Federal Communications Commission (FCC), a regulatory approver for spacecraft being launched to orbit, is approaching approval of licenses for over 100,000 satellites to be launched. It is known from ASTI sales relationships that the average power generation requirements per satellites is 1 to 15 kW. Thus, a bottoms up market analysis would project current market demand backlog could exceed 100MW

Future Growth Opportunities Space (Page 1 of 2)

There are a few large constellations consisting of thousands of satellites that are currently being fielded. or contemplated being fielded in the next 6 months. ASTI has signed 18 NDA's in 2025 many of which are testing ASTI's products.

Company A - Megaconstellations

- Number of units: +2,500 Satellites in initial constellations
- Power Needs: ~10 kW/Satellite (~16MW for the constellation)
- ASTI has tests on going with Company A

Company B – Space defense weapon (Golden Dome)

- Teaming Agreement signed for pace weapons system
- 85% vertically integrated, but not power generation, potential for ASTI "Fabless" production being added to their requirements
- Number of units: +500 units per year production, estimated 1 to 1.2 MW in annual production

Company C – Satellite Production Company (.5 to 2 MW)

- Number of units: 30 to 200
- Power Needs: 1.2 to 3 kW per satellite
- Specifications and sale quote information exchanged

Future Growth Opportunities Space (Page 2 of 2)

In addition to the large constellations being fielded thousands of other satellites are being fielded in the next 12 months. ASTI has signed 18 NDA's in 2025 many of which are testing ASTI's products or getting ready to fly our solar.

NOVI – Small Sat Rollable Array - Customer

- Number of units: 20 to 100
- Power Needs: ~ 40 to 100 watts
- Increased request to include body mounted modules

Company D – Defense contractor to support US Army – Battery Charging

- Number of units: 50 to 100
- Power Needs: 1 kW per unit
- Exchanging array designs

Company E – Defense contractor to support US Army – Hydrolyzers

- Number of units: 25 to 200
- Power Needs: 7 kW per unit
- Exchanging array designs

Company F – Power System/Deployables Production Company (.5 to 2 MW)

- Number of units: 30 to 2000
- Power Needs: 1.2 to 3 kW per satellite
- Purchased modules to test

Potential Sales

FY	Estimate In USD
2026	$5.0 million - $20.0 million
2027	$25.0 million - $45.0 million

- Sales are derived from three segments
  1. Mega-constellation satellite companies
  2. Satellite companies
  3. Defense contractors

- +20 potential customers are under NDA
- These sales are not under contract and discussions are in different stages:

  a) Placing small orders to test (with orders to follow test phase from .5 to 15MW)

  b) Signed Teaming Agreements

  c) Multiple discussions around technology and production schedule

Our statements about future sales opportunities are forward-looking statements based on the current beliefs, expectations and assumptions of the management of Ascent and are subject to significant risks and uncertainty. Sales opportunities could require additional capital fund raising estimated to be at least $2 to 3 million in 2026 of debt and equity.

ASTI Leadership Team

CEO - Paul Warley & Board Member

- ***Joined in December 2022*** as CFO and promoted to CEO in April 2023
- From 2015-2022, was ***president of Warley & Company LLC***, a middle Market Strategic Advisory firm and provided:
  - ***Executive management***
  - ***Services***
  - ***Capital advisory***
  - ***M&A***
- ***CEO and CFO of 360Imaging***, a provider of products and services for implant surgery and digital dentistry.
- Served clients in the ***alternative energy industry as a managing director and chief compliance officer*** with Deloitte Corporate Finance.
- Executive roles at ***GE Capital*** and ***Bank of America and Bankers Trust***.
- ***Captain in the US Army***

COO - Bobby Gulati

- ***Joined Ascent in February 2012.*** Prior roles as Head Equipment Engineer, Director of Engineering, and Chief Information Officer.
- ***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.
- ***Co-founder and President*** of TriStar Systems, ***a manufacturer of automated manufacturing and assembly equipment for the solar, aerospace*** and disk drive industries.
- ***Co-founder and COO*** of the publicly traded company NexStar Automation, whose focus was ***designing and building automated production equipment***.
- University of Colorado, Boulder, B.S. Electrical Engineering - Computer Science and Robotics

CFO - Jin Jo

- ***Joined the Company in June 2021*** Prior role as Corporate Controller
- ***Head of technical accounting at Empower Retirement***, a financial
- services company. Duties included:
  - Accounting research for complex new products
  - New accounting standards implementation on International Financial Reporting Standards and US GAAP.
- ***Inspection Specialist at the PCOAB*** - assessed auditor compliance with audit professional standards.
- Started her career in ***big four public accounting***, spending 11 years in the audit and assurance practice serving both public and private companies.
- ***Certified public accountant*** in the state of Colorado
- University of Colorado, Boulder, B.S. Business Administration

ASTI Board of Directors

David Peterson
Chairman of the Board (September 2022)
Board Member (December 2020)

- Currently ***CEO of Clean H2, Inc***., a distributor of hydrogen electrolyzers
- 2015 to 2023, ***Senior Project manager for EPD Consultants, Inc***., a privately held engineering firm
- 2010 to 2015, P***resident and Co-Founder of Great Circle Industries, Inc***., a water recycling company
- Previously was a ***board member at AIR-serv, LLC***, a tire inflation vending machine manufacturer
  - Managed the acquisition process, including ***expanding 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***.
- MBA, University of Southern California, Marshall School of Business
- B.A., UC Santa Cruz.

Forrest Reynolds
Board Member (September 2022)

- Currently the ***Managing Partner of CalTex Capital, LLC***, a privately held investment firm, and a ***Managing Director of The Vortex Group*** Family Office, LLC, a private family office.
- Previously was the ***Chief Restructuring Officer for Centaur Gaming, LLC***, a gaming development company
  - ***Managed a $1.0 billion Chapter 11 bankruptcy reorganization*** for the company.
- Previously 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***.
- On the board of several private companies and is actively involved with several charitable organizations.
- B.B.A., Finance, University of Texas at Austin
- B.A., Economics, University of Texas at Austin

ASTI Board of Directors (ctd.)

Louis Berezovsky, CMA
Board Member (September 2022)

- Joined ***Eagle Infrastructure Services*** in July 2013
  - Leads the ***Finance and Accounting, M&A, Human Resources, Legal and IT*** functions.
- Prior to Eagle, 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***.
- Began his career at a Minneapolis based CPA firm.
- Completed more than ***60 acquisitions*** as well as ***multiple recapitalizations*** and ***successful sale processes***.
- 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.
- B.S., Accounting, University of Minnesota, Carlson School of Management

Gregory Thompson, CPA
Board Member (April 2023)

- 2018-2021, ***EVP and CFO of KEMET Corporation***, a manufacturer of a broad selection of capacitor technologies, and a variety of other passive electronic components.
- 2008-2016, ***EVP and CFO of Axiall Corporation***, a manufacturer and marketer of chlorovinyls and aromatics (acetone, cumene, phenol). Axiall was sold to Westlake Chemical Corporation in late 2016.
- 2002-2008, ***CFO of medical equipment manufacturer Invacare Corporation***
- 2000-2002, ***CFO of Sensormatic Electronics Corporation***
- 1997-2000, ***Corporate Controller of Sensormatic***
- 1999-1994, ***VP and Corporate Controller at Wang Laboratories, Inc.***
- Spent 13 years at ***Price Waterhouse*** and ***Coopers & Lybrand*** serving international clients in industries including chemicals, construction, distribution, manufacturing, metals, retail, and technology.
- Member, American Institute of Certified Public Accountants.
- B.S., Accounting, Virginia Tech (1977)

ASTI Strategic Advisory Board

January 2024 established the ASTI Strategic Advisory Board to advise Company leadership on space industry and government contracting processes and strategies, and lead development of marketing programs to engage target customers.

Philippe Kassouf

- Former founding member of ***SpaceX***
  - Oversaw ***research and development*** for the ***avionics*** department, where he was tasked with identifying which technology was best suited for each vehicle
  - ***Architecture development and migration*** from the ***Falcon 1*** spacecraft to ***Falcon 9***, as well as the architecture development of ***Dragon***
- Currently serves as the ***Founder and CEO of QED Engineering Inc.***, a startup aimed at ***new product development for the space and military aerospace*** markets.
- Prior to was ***CTO at Aitech Defense Systems, Inc.***, where he was responsible for the ***design of space-qualified and radiation-tolerant Single Board Computers, gigabit ethernet network switches, and Network Interface Card solutions***

Casey Blake
Maj Gen (Ret), USAF

- Served as the ***Deputy Assistant Secretary for Contracting*** in the Office of the Assistant Secretary of the Air Force for Acquisition, in Washington, D.C.
  - Managed all aspects of ***Air Force contracting*** relating to the acquisition of weapon systems, logistics, and operational support.
  - Led a highly skilled staff which ***oversaw training, organizing, and equipping a workforce of about 8,000 contracting professionals*** that executed programs worth more than ***$65 billion annually***
- Prior to this assignment, he served as the ***Commander***, Air Force Installation Contracting Agency (AFICA), Office of the Assistant Secretary of the Air Force for Acquisition, Wright-Patterson Air Force Base, Ohio.

Summary Highlights

- Positioned to be the solar provider of choice for space and near space needs due to our superior power to weight ratio, low costs and lower degradation.
- In discussions with leading satellite and deployable companies that are currently testing ASTI solar panels for space and lower orbit
- Strengthened capital structure to support maximizing shareholder value

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