Ascent Solar Technologies, Inc.
Form 10-K
March 29, 2018
Table of Contents

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

FORM 10-K

(Mark One)
x ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2017
or
o TRANSITION REPORT UNDER SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the Transition Period from to
Commission File No. 001-32919

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

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

Registrant's telephone number including area code: 720-872-5000
Securities registered pursuant to Section 12(b) of the Act:

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

Securities registered pursuant to Section 12(g) of the Act:
None
Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes o No x
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 o No x
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 x No o
Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). x Yes o No

Table of Contents

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

Large accelerated filer	o	Accelerated filer	o
Non-accelerated filer	o (Do not check if a smaller reporting company)	Smaller reporting company	x
		Emerging growth company	o

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.o

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

As of June 30, 2017, the last business day of the registrant’s most recently completed second fiscal quarter, the aggregate market value of the registrant’s common stock held by non-affiliates was approximately $2.9 million based upon the last reported sale price of the registrant’s common stock on that date as reported by OTCBB Market, operated by OTC Markets Group Inc.

As of March 26, 2018, there were 12,738,084,718 shares of our common stock issued and outstanding.

Table of Contents

ASCENT SOLAR TECHNOLOGIES, INC.
Form 10-K Annual Report
for the Fiscal Year ended December 31, 2017
Table of Contents

Table of Contents

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 inte to identify forward-looking statements. All forward-looking statements are based upon information available to us on the date of this Annual Report.

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

- Our limited operating history and lack of profitability;
- Our ability to develop demand for, and sales of, our products;
- Our ability to attract and retain qualified personnel to implement our business plan and corporate growth strategies;
- Our ability to develop sales, marketing and distribution capabilities;
- Our ability to successfully develop and maintain strategic relationships with key partners, including OEMs, system integrators, distributors, retailers and e-commerce companies, who deal directly with end users in our target markets;
- The accuracy of our estimates and projections;
- Our ability to secure additional financing to fund our short-term and long-term financial needs;
- Our ability to maintain the listing of our common stock on the OTCBB Market;
- The commencement, or outcome, of legal proceedings against us, or by us, including ongoing ligation proceedings;
- Changes in our business plan or corporate strategies;
- The extent to which we are able to manage the growth of our operations effectively, both domestically and abroad, whether directly owned or indirectly through licenses;
- The supply, availability and price of equipment, components and raw materials, including the elements needed to produce our photovoltaic modules;
- Our ability to expand and protect the intellectual property portfolio that relates to our consumer electronics, photovoltaic modules and processes;
- Our ability to implement remediation measures to address material weaknesses in internal control;
- General economic and business conditions, and in particular, conditions specific to consumer electronics and the solar power industry; and
- Other risks and uncertainties discussed in greater detail in the section captioned "Risk Factors."

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

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

Table of Contents

PART I

Item 1. Business

Business Overview

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

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

Product History

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

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

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

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

Table of Contents

In 2012, we evolved our business model to include B2C, solution based, PV integrated consumer electronics to our off grid high value solar power generation strategy. In June of 2012, we launched our new line of consumer products under the EnerPlex™ brand, and introduced our first product, the Surfr™; a battery and solar case for the Apple® iPhone® 4/4S smart phone featuring our ultra-light CIGS thin film technology integrated directly into the case. The case incorporates our ultra-light and thin PV module into a sleek, protective iPhone 4/4S case, along with a thin, life extending, lithium-polymer battery. The case adds minimal weight and size to an iPhone smartphone, yet provides supplemental charging when needed. In August of 2012, we announced the launch of the second version of the Surfr for the Samsung® Galaxy S® III, which provides 85% additional battery life.

In December 2012, we launched the EnerPlex Kickr™ and EnerPlex Jumpr™ product series. The Kickr IV is an extremely portable, compact and durable solar charging device, approximately seven inches by seven inches when folded, and weighs less than half a pound. The Kickr IV provides 6.5 watts of regulated power that can help charge phones, digital cameras, and other small USB enabled devices. The Kickr IV is ideal for outdoor activities such as camping, hiking and mountain climbing as well as daily city use. To complement the Kickr IV, we also released the Jumpr series of portable power banks in December of 2012. The Jumpr series provides a compact power storage solution for those who need to recharge their portable electronics while on the go.

During 2013, the EnerPlex brand rapidly expanded with the addition of two new product series as well as over fifteen new products. In 2013, we introduced further additions to the Jumpr line of portable power banks; releasing the Jumpr Mini and Jumpr Stack in August and the Jumpr Max in September. The latest additions to the Kickr line of portable solar chargers, the Kickr I and Kickr II, were introduced in August at the Outdoor Retailer show. In October 2013, we released our first series of solar integrated backpacks, the EnerPlex Packr™. The Packr is a functional backpack ideal for charging mobile electronic devices while on the go. Also in October of 2013, we introduced the Surfr battery and solar case for the Samsung Galaxy S® 4, and in December 2013, we introduced the Surfr battery and solar case for Apple's iPhone® 5. To complement our flagship product lines, we added an assortment of accessories, all of which can be integrated into the EnerPlex ecosystem of products; the LED wand, which can be easily plugged into a Jumpr power bank to provide hours of light, or the Travel Adaptor, which enables consumers to charge up their Jumpr power banks from a traditional outlet anywhere in the world.

Beginning in 2013, we aggressively pursued new distribution channels for the EnerPlex brand; these activities led to placement in a variety of high-traffic ecommerce venues such as www.amazon.com, www.walmart.com, www.brookstone.com, www.newegg.com, as well as many others including our own e-commerce platform at www.goenerplex.com. The April 2013 placement of EnerPlex products at Fry's Electronics, a US West Coast consumer electronics retailer, represented the company's first domestic retail presence; EnerPlex products were carried in all of Fry's 34 superstores across 9 states.

Throughout 2014, EnerPlex released multiple additions to the Jumpr line of products: including the Jumpr Stack 3, 6 and 9; innovative batteries equipped with tethered micro-USB and Apple Lightning cables with a revolutionary Stack and Charge design, enabling batteries to be charged simultaneously when they are placed on top of one another. Also released in 2014 were the Jumpr Slate series, products which push the boundaries of how thin batteries can be; the Jumpr Slate 10k, at less than 7mm thick was the thinnest lithium polymer battery available when it was released. The Jumpr Slate 5k and 5k Lightning each come with a tethered micro-USB and Lightning cable respectively; freeing consumers from worrying about toting extra cables with them while on the move.

At Outdoor Retailer 2014, EnerPlex debuted the Generatr Series. The Generatr 1200 and Generatr 100 are lithium-ion based, large format batteries. Lighter and smaller than competitors, the Generatr Series are targeted for consumers who require high-capacity, high-output batteries which remain ultra-portable. Also debuted at Outdoor Retailer was the Commandr 20, a high output solar charger designed specifically to integrate with and charge the Generatr series, allowing consumers to stay out longer without needing to charge their Generatr batteries from a traditional power

source. In August 2014, the Kickr II+ and IV+ were also announced, these products represent another evolution in EnerPlex's line of solar products; integrated with a 500mAh battery the Kickr II+ and IV+ are able to provide a constant flow of power even when there are intermittent disruptions in sunlight.

During 2015, we reached an agreement with EVINE Live, one of the premier home shopping networks with TV programming that reaches over 87 million US homes to begin selling EnerPlex products during their broadcasts. EnerPlex launched the Generatr S100 and select other products exclusively with EVINE, EnerPlex also launched the Generatr 1200 launched exclusively with EVINE for a limited period. Also during 2015, EnerPlex expanded its relationship with The Cellular Connection to include over 450 Verizon Wireless Premium Retail Stores; launched its products with two world recognized retailers; The Sports Authority and Cabela's; and launched its products with GovX; the premier online shopping destination for Military, Law Enforcement and Government agencies. Internationally, EnerPlex products became available in the United Kingdom via the brand's launch with 172 Maplin's stores throughout the country.

Table of Contents

In 2016, EnerPlex launched the new emergency sales vertical, partnering with Emergency Preparedness eCommerce leader, Emergency Essentials, and we announced new breakthroughs in the Company's line of high-voltage solar products, designed specifically for high-altitude and space markets. Also during the first quarter of 2016, the Company announced the launch of select products on the GSA Advantage website; allowing Federal employees, including members of all branches of the US Military, to directly purchase Ascent and EnerPlex products including: the MilPak E, Commandr 20, Kickr 4 and WaveSol solar modules.

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

In February 2017 Ascent announced the discontinuation of our EnerPlex consumer business by disposing of the EnerPlex brand, and related intellectual properties and trademarks, to our battery product supplier, Sun Pleasure Co. Limited ("SPCL"). This transaction was completed in an effort to better allocate our resources and to continue to focus on our core strength in the high-value specialty PV market. Following the transfer, Ascent will no longer be producing or selling Enerplex-branded consumer products. Ascent will focus on its photovoltaic business and will supply solar PV products to SPCL, supporting the continuous growth of EnerPlex™ with Ascent's proprietary and award-winning thin-film solar technologies and products.

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

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

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

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

Commercialization and Manufacturing Strategy

We manufacture our products by affixing a thin CIGS layer to a flexible, plastic substrate using a large format, roll-to-roll process that permits us to fabricate our flexible PV modules in an integrated sequential operation. We use

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

On February 2, 2012, we announced the appointment of Victor Lee as President and Chief Executive Officer. Mr. Lee has served on our Board since November 2011. Mr. Lee is the Managing Director of Tertius Financial Group Pte Ltd ("TFG"), which at the time was the largest shareholder of Ascent Solar. TFG held approximately 3% of the total outstanding shares as of December 31, 2017.

Table of Contents

Currently, we are producing OEM and consumer oriented products focusing on charging devices powered by our solar modules. Products in these markets are priced based on the overall value proposition rather than a commodity-style price per watt basis. We continue to develop new consumer products and we have adjusted our utilization of our equipment to meet our near term forecast sales. We plan to continue the development of our current PV technology to increase module efficiency, improve our manufacturing tooling and process capabilities and reduce manufacturing costs. We also plan to continue to take advantage of research and development contracts to fund a portion of this development.

Advantages of CIGS on a Flexible Plastic Substrate

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

- CIGS versus a-Si: Although a-Si, like CIGS, can be deposited on a flexible substrate, its conversion efficiency, which already is generally much lower than that of CIGS, measurably degrades when it is exposed to ultraviolet light, including natural sunlight. To mitigate such degradation, manufacturers of a-Si solar cells are required to implement measures that add cost and complexity to their manufacturing processes.
- CIGS versus CdTe: Although CdTe modules have achieved conversion efficiencies that are generally comparable to CIGS in production, we believe CdTe has never been successfully applied to a flexible substrate on a commercial scale. We believe the use of CdTe on a rigid, transparent substrate, such as glass, makes CdTe unsuitable for a number of the applications. We also believe CIGS can achieve higher conversion efficiencies than CdTe in production.

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

Competitive Strengths

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

- We are a pioneer in CIGS technology with a proprietary, flexible, lightweight, high efficiency PV thin film product that positions us to penetrate a wide range of attractive high value added markets such as consumer products, off grid, portable power, transportation, defense, aerial, and other markets. By applying CIGS to a flexible plastic substrate, we have developed a PV module that is efficient, lightweight and flexible; with the highest power-to-weight ratio in at-scale commercially available solar. The market for electronic components, such as electronic packages, casings and

accessories, as well as defense portable power systems, transportation integrated applications and space and near-space solar power application solutions represent a significant premium market for the company. Relative to our thin film competitors, we believe our advantage in thin film CIGS on plastic technology provides us with a superior product offering for these strategic market segments.

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

Table of Contents

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

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

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

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

Markets and Marketing Strategy

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

In February 2017 Ascent announced the discontinuation of our EnerPlex consumer business by disposing of the EnerPlex brand, and related intellectual properties and trademarks, to our battery product supplier, in an effort to better allocate its resources and to continue to focus on its core strength in the high-value specialty PV market. Ascent is no longer producing or selling Enerplex-branded consumer products and is focusing on its photovoltaic business. Ascent will continue to supply solar PV products for the EnerPlex™ products, thereby supporting their continued growth with Ascent’s proprietary and award-winning thin-film solar technologies and products.

Ascent’s strategic marketing efforts in 2018 will be focused on commercializing our proprietary solar technology in four high-value PV verticals:

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

IV.Consumer and OEM

Each of these strategic verticals include customer segments that place a high value on lightweight, high performance and durable portable power solutions. The value proposition of Ascent's proprietary solar technology not only aligns with the needs of customers in these verticals, but also overcomes many of the obstacles other solar technologies face in these unique markets. Ascent has the capability to design and develop finished products for end users in these areas as well as collaborate with strategic partners to design and develop custom integrated solutions for products like fixed-wing UAVs. Ascent sees significant overlap in the needs of end users across some of these verticals and can achieve economies of scale in sourcing, development, and production in commercializing products for these customers.

Table of Contents

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

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

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

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

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

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

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

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

Table of Contents

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

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

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

Competition

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

The market for traditional, grid connected PV products is dominated by large manufacturers of c-Si technology, although thin film technology on glass has begun to emerge among the major players. We anticipate that while these large manufacturers may continue to dominate the market with their silicon based products, thin film manufacturers will likely capture an increasingly larger share of the market, as is evident from the success of First Solar (CdTe) and Solar Frontier (CIGS), both among the top 20 producers worldwide. In 2016, crystalline silicon PV technology represented over 90% of global market revenue and 93% of global production, with the balance captured by thin film. Approximately half of thin film production is CdTe production, with the other half being split between CIGS and a-Si.

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

We define the consumer and portable power space as comprising solar powered solutions in the sub-single watt range (i.e. solar power for remote sensors) all the way up to the several hundred watts of power range (i.e. outdoor solar chargers for camping, military or outdoor work). Competitors in the consumer products space include companies that design and distribute solar charging solutions but outsource manufacturing. These include Goal Zero, Voltaic, A-Solar, Solio, PowerTraveller, Solar Components, and RDK Products. Mono or polycrystalline silicon solar technologies are common in these products. Other competitors in this segment include thin-film solar manufacturers who provide a complete product under their company name or brand. These companies include P3 solar, PowerFilm, Trony, and more recently Alta Devices. We believe our differentiated technology lends itself to delivering competitive solutions in the emerging market for personal and portable solar and non-solar charging solutions.

Table of Contents

Research and Development and Intellectual Property

We intend to continue to invest in research and development in order to provide near term improvements to our manufacturing process and products, as well as to identify next generation technologies relevant to both our existing and potential new markets. During 2017 and 2016 we incurred approximately $4.8 million and $6.6 million respectively, in research and development costs, which include research and development incurred in relation to our government contracts, as well as manufacturing costs incurred while developing our product lines and manufacturing process.

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

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

Issued Patents and Registrations

1. US Patent No. 7,271,333 entitled "Apparatus and Method of Production of Thin-Film Photovoltaic Modules" (issued September 18, 2007)
2. US Patent No. 7,812,247 entitled "Flexible Photovoltaic Array With Integrated Wiring And Control Circuitry, And Associated Methods" (issued October 12, 2010; (co-owned with PermaCity Corporation)
3. US Patent No. 8,021,905 entitled "Machine and Process for Sequential Multi-Sublayer Deposition of Copper Indium Gallium Diselenide Compound Semiconductors" (issued September 20, 2011)
4. US Patent No. 8,124,870 entitled "Systems and Processes for Bifacial Collection and Tandem Junctions Using a Thin film Photovoltaic Device" (issued February 28, 2012)
5. US Patent No. 8,207,442 entitled "Reinforcing Structures for Thin film Photovoltaic Device Substrates, and Associated Methods" (issued June 26, 2012)
6. US Patent No. 8,426,725 entitled "Apparatus and Method for Hybrid Photovoltaic Device Having Multiple, Stacked, Heterogeneous, Semiconductor Junctions" (issued April 23, 2013)
7. US Patent No. 8,465,589 entitled "Machine and Process for Sequential Multi-Sublayer Deposition of Copper Indium Gallium Diselenide Compound Semiconductors" (issued June 18, 2013)
8. US Patent No. D697,502 entitled "Mobile Electronic Device Case" (issued January 14, 2014)
9. US Patent No. 8,648,253 entitled "Machine and Process for Continuous, Sequential, Deposition of Semiconductor Solar Absorbers Having Variable Semiconductor Composition Deposited in Multiple Sublayers" (issued February 11, 2014)
10. US Patent No. 8,716,591 entitled "Array of Monolithically Integrated Thin Film PhotoVoltaic Cells and Associated Methods" (issued May 6, 2014)
11. ECD No. 001429773-0001 entitled "Mobile Handheld Electronic Device Case" (issued February 6, 2015)
12. ECD No. 001429773-0002 entitled "Mobile Handheld Electronic Device Case" (issued February 6, 2015)
13. ECD No. 001429773-0003 entitled "Mobile Handheld Electronic Device Case" (issued February 6, 2015)
14. ECD No. 001429773-0004 entitled "Mobile Handheld Electronic Device Case" (issued February 6, 2015)
15. ECD No. 001429773-0005 entitled "Mobile Handheld Electronic Device Case" (issued February 6, 2015)
16. ECD No. 001429773-0006 entitled "Mobile Handheld Electronic Device Case" (issued February 6, 2015)
17. ECD No. 001429773-0007 entitled "Mobile Handheld Electronic Device Case" (issued February 6, 2015)

18. ECD No. 002732123-0001 entitled “Portable Battery Charging Device” (issued July 7, 2015)
19. ECD No. 002732123-0002 entitled “Portable Battery Charging Device” (issued July 7, 2015)
20. ECD No. 002732123-0003 entitled “Portable Battery Charging Device” (issued July 7, 2015)
21. ECD No. 002735159-0001 entitled “Portable Energy Storage And Distribution Device” (issued July 10, 2015)
22. ECD No. 002735159-0002 entitled “Portable Energy Storage And Distribution Device” (issued July 10, 2015)
23. ECD No. 002735159-0003 entitled “Portable Energy Storage And Distribution Device” (issued July 10, 2015)
24. ECD No. 002735159-0004 entitled “Portable Energy Storage And Distribution Device” (issued July 10, 2015)

Table of Contents

25. US Patent 9,147,783 entitled “Apparatus and Method for Hybrid Photovoltaic Device Having Multiple, Stacked, Heterogeneous, Semiconductor Junctions” (issued September 29, 2015)
26. KR Patent No. 30. 0860220 entitled “Apparatus and Method for Hybrid Photovoltaic Device Having Multiple, Stacked, Heterogeneous, Semiconductor Junctions” (issued October 13, 2015)
27. KR Patent 10-1561453 entitled “Apparatus and Method for Hybrid Photovoltaic Device Having Multiple, Stacked, Heterogeneous, Semiconductor Junctions” (issued October 13, 2015)
28. US Patent No. 9,209,322 entitled “Multilayer Thin-Film Back Contact System For Flexible Photovoltaic Devices On Polymer Substrates” (issued December 8, 2015)
29. US Patent No. 9,219,179 entitled “Multilayer Thin-Film Back Contact System For Flexible Photovoltaic Devices On Polymer Substrates” (issued December 22, 2015)
30. CN Patent No. ZL 201530237203.8 entitled “Photovoltaic-Based Fully Integrated Portable Power System” (issued February 10, 2016)
31. TW Patent No. I526630 entitled “Subtractive Hinge and Associated Methods” (issued March 21, 2016)
32. US Patent No. 9,349,905 entitled “Hybrid Multi-Junction Photovoltaic Cells And Associated Methods” (issued May 24, 2016)
33. TW Patent No. I536592 entitled “Photovoltaic Assembly and Associated Methods” (issued June 1, 2016)
34. KR Patent No. 30-0860220 entitled “Photovoltaic-Based Fully Integrated Portable Equipment For Control of Electric Power” (issued June 16, 2016)
35. CN Patent No. ZL 201180067131.6 entitled “Apparatus and Method for Hybrid Photovoltaic Device Having Multiple, Stacked, Heterogeneous, Semiconductor Junctions” (issued August 10, 2016)
36. CN Patent No. ZL201380012566.X entitled “Subtractive Hinge And Associated Methods” (issued August 24, 2016)
37. US Patent No. 9538671 entitled System For Housing And Powering A Battery-Operated Device And Associated Methods (issued January 3, 2017)
38. US Patent No. D781,228 entitled Pocket-Sized Photovoltaic-Based Fully Integrated Portable Power System (issued March 14, 2017)
39. US Patent No. 9601650 entitled Machine And Process For Continuous, Sequential, Deposition Of Semiconductor Solar Absorbers Having Variable Semiconductor Composition Deposited In Multiple Sublayers (issued March 21, 2017)
40. US Patent No. 9634175 entitled Systems And Methods For Thermally Managing High-Temperature Processes On Temperature Sensitive Substrates (issued April 25, 2017)
41. US Patent No. 9640706 entitled Hybrid Multi-Junction Photovoltaic Cells And Associated Methods (issued May 2, 2017)
42. US Patent No. 9640692 entitled Flexible Photovoltaic Array with Integrated Wiring and Control Circuitry, and Associated Methods (issued May 2, 2017)
43. US Patent No. 9653635 entitled Flexible High-Voltage Adaptable Current Photovoltaic Modules and Associated Methods (issued May 16, 2017)
44. Tawian Patent No. I583810 entitled Systems And Methods For Thermally Managing High-Temperature Processes On Temperature Sensitive Substrates (issued May 21, 2017)
45. Switzerland Patent No. 2742535 entitled Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates (issued July 26, 2017)
46. EPC Patent No. 2742535 entitled Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates (issued July 26, 2017)
47. France Patent No. 2742535 entitled Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates (issued July 26, 2017)
48. Great Britain Patent No. 2742535 entitled Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates (issued July 26, 2017)
49. Germany Patent No. 602012035034.2 entitled Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates (issued July 26, 2017)
50.

Taiwan Patent No. I595674 entitled Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates (issued August 11, 2017)

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

Table of Contents

Published Patent Applications

1. "Flexible Photovoltaic Array with Integrated Wiring and Control Circuitry, and Associated Methods" (US 12/901,963) (filed October 11, 2010) (co-owned with PermaCity Corporation)
2. “Cd-Free, Oxide Buffer Layers for Thin Film CIGS Solar Cells By Chemical Solution Deposition Methods” (US 13/227,935) (filed September 8, 2011)
3. “Systems and Processes for Bifacial Collection and Tandem Junctions Using a Thin film Photovoltaic Device” (US 13/406,376) (filed February 27, 2012)
4. “Multilayer Thin Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates” (US 13/572,387) (filed August 10, 2012)
5. “Multilayer Thin Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates” (PCT/US2012/050398) (filed August 10, 2012)
6. “Multilayer Thin Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates” (CN 201280047345.1) (filed August 10, 2012)
7. “Apparatus and Method for Hybrid Photovoltaic Device Having Multiple, Stacked, Heterogeneous, Semiconductor Junctions” (EP 11804861.0) (filed December 13, 2011)
8. “Apparatus and Method for Hybrid Photovoltaic Device Having Multiple, Stacked, Heterogeneous, Semiconductor Junctions” (CN 201180067131.6) (filed December 13, 2011)
9. “Subtractive Hinge and Associated Methods (US 13/783,336) (filed March 3, 2013)
10. “Subtractive Hinge and Associated Methods (PCT/US 2013/28,929) (filed March 4, 2013)
11. “Subtractive Hinge and Associated Methods (CN 201380012566.X) (filed March 4, 2013)
12. “Subtractive Hinge and Associated Methods (EP 13758462.9) (filed March 4, 2013)
13. “System For Housing And Powering A Battery-Operated Device And Associated Methods” (US 13/802,713) (filed March 14, 2013)
14. “System For Housing And Powering A Battery-Operated Device And Associated Methods” (US 13/802,719) (filed March 14, 2013)
15. “System For Housing And Powering A Battery-Operated Device And Associated Methods” (PCT/US2013/34988) (filed April 2, 2013)
16. “Photovoltaic Assembly and Associated Methods” (US 14/038096) (filed September 26, 2013)
17. “Photovoltaic Assembly and Associated Methods” (PCT/US2013/62355) (filed September 27, 2013)
18. “Photovoltaic Assembly and Associated Methods” (CN 201380060351.5) (filed September 27, 2013)
19. “Photovoltaic Assembly and Associated Methods” (EP 13840976.8) (filed September 27, 2013)
20. “Flexible High-Voltage Adaptable Current Photovoltaic Modules and Associated Methods” (US 14/041,886) (filed September 30, 2013)
21. “Hybrid Multi-Junction Photovoltaic Cells And Associated Methods” (US 14/100,960) (filed December 9, 2013)
22. “System For Housing And Powering A Battery-Operated Device And Associated Methods” (PCT/US2013/74936) (filed December 13, 2013)
23. “Systems And Methods For Thermally Managing High-Temperature Processes On Temperature Sensitive Substrates” (US 14/150,376) (filed January 8, 2014)
24. “Systems And Methods For Thermally Managing High-Temperature Processes On Temperature Sensitive Substrates” (PCT/US2014/10867) (filed January 8, 2014)
25. “Systems And Methods For Thermally Managing High-Temperature Processes On Temperature Sensitive Substrates” (CN 201480004408.4) (filed January 8, 2014)
26. “Systems And Methods For Thermally Managing High-Temperature Processes On Temperature Sensitive Substrates” (EP 14738271.7) (filed January 8, 2014)
27. “Multilayer Thin-Film Back Contact System For Flexible Photovoltaic Devices On Polymer Substrates” (PCT/US15/20184) (filed March 12, 2015)
28. “Array Of Monolithically Integrated Thin Film Photovoltaic Cells And Associated Methods” (14/252,485) (filed April 14, 2014)

29. “Subtractive Hinge And Associated Methods” (EP 13758462.9) (filed March 4, 2013)
30. “Photovoltaic Assembly and Associated Methods” (EP 13840976.8) (filed September 27, 2013)

Table of Contents

31. "Systems And Methods For Thermally Managing High-Temperature Processes On Temperature Sensitive Substrates" (CN 201480004408.4) (filed January 9, 2014)
32. "Systems And Methods For Thermally Managing High-Temperature Processes On Temperature Sensitive Substrates" (EP 14738271.7) (filed January 9, 2014)
33. "Multilayer Thin-Film Back Contact System For Flexible Photovoltaic Devices On Polymer Substrates" (US 14/932,933) (filed November 4, 2015)
34. "Photovoltaic-Based Fully Integrated Portable Power Systems" (PCT/US16/12047) (filed January 4, 2016)
35. "Photovoltaic-Based Fully Integrated Portable Power System" (US 14/987,214) (filed January 4, 2016)
36. "Systems and Processes for Bifacial Collection and Tandem Junctions Using a Thin-Film Photovoltaic Device" (US 15/099,835) (filed April 15, 2016)
37. "Photovoltaic-Based Fully Integrated Portable Power Management And Networking System" (PCT/US16/25647) (filed April 1, 2016)
38. "Photovoltaic-Based Fully Integrated Portable Power Management And Networking System" (US 15/089,028) (filed April 1, 2016)
39. "Photovoltaic Device and Method of Manufacturing Same" (CN 201610416638.2) (filed December 13, 2011)
40. "Multilayer Thin-Film Back Contact System For Flexible Photovoltaic Devices On Polymer Substrates" (US 15/258,169) (filed September 7, 2016)
41. "Hybrid Multi-Junction Photovoltaic Cells And Associated Methods" (US 15/137,696) (filed April 25, 2016)
42. "Machine And Process For Continuous, Sequential, Deposition Of Semiconductor Solar Absorbers Having Variable Semiconductor Composition Deposited In Multiple Sublayers" (US 15/584,241) (filed May 2, 2017)
43. "Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates" (GB 12759843.1) (Filed August 10, 2012)
44. "Multilayer Thin-Film Back Contact System for Flexible Photovoltaic Devices on Polymer Substrates" (WO PCT/US16/58933) (Filed October 26, 2016)
45. "Subtractive Hinge and Associated Methods" (US 15/673,283) (Filed August 9, 2017)

Ascent Solar has trademark applications and registrations in the United States and worldwide for slogans and product family names such as Milpak, Corpak, Life is Limitless, Transforming Everyday Life, and Solar Power Everywhere.

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

Suppliers

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

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

Employees

As of December 31, 2017, we had 71 full time employees.

Table of Contents

Company History

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

Corporate Information

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

Available Information

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

Item 1A. Risk Factors

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

Risks Relating to Our Business

We have a limited history of operations, have not generated significant revenue from operations and have had limited production of our products. We have a limited operating history and have generated limited revenue from operations. Currently we are producing products in quantities necessary to meet current demand. Under our current business plan, we expect losses to continue until annual revenues and gross margins reach a high enough level to cover operating

expenses. We are utilizing contract manufacturers in Asia for components and for final assembly of finished goods. Our ability to achieve our business, commercialization and expansion objectives will depend on a number of factors, including whether:

- We can generate customer acceptance of and demand for our products;
- We successfully ramp up commercial production on the equipment installed;
- Our products are successfully and timely certified for use in our target markets;
- We successfully operate production tools to achieve the efficiencies, throughput and yield necessary to reach our cost targets;
- The products we design are saleable at a price sufficient to generate profits;
- We raise sufficient capital to enable us to reach a level of sales sufficient to achieve profitability on terms favorable to us;

Table of Contents

- We are able to successfully design, manufacture, market, distribute and sell our products;
- We effectively manage the planned ramp up of our operations;
- We successfully develop and maintain strategic relationships with key partners, including OEMs, system integrators and distributors, retailers and e-commerce companies, who deal directly with end users in our target markets;
- Our ability to maintain the listing of our common stock on the OTCBB Market;
- Our ability to achieve projected operational performance and cost metrics;
- Our ability to enter into commercially viable licensing, joint venture, or other commercial arrangements; and
- The availability of raw materials.

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

We have to date incurred net losses and may be unable to generate sufficient sales in the future to become profitable. We incurred a net loss of $19 million for the year ended December 31, 2017 and reported an accumulated deficit of $402 million as of December 31, 2017. We expect to incur net losses in the near term. Our ability to achieve profitability depends on a number of factors, including market acceptance of our specialty PV products at competitive prices. If we are unable to raise additional capital and generate sufficient revenue to achieve profitability and positive cash flows, we may be unable to satisfy our commitments and may have to discontinue operations.

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

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

Failure to expand our manufacturing capability successfully at our facilities would adversely impact our ability to sell our products into our target markets and would materially and adversely affect our business, results of operations and financial condition. Our growth plan calls for production and operation at our facility. Successful operations will require substantial engineering and manufacturing resources and are subject to significant risks, including risks of cost overruns, delays and other risks, such as geopolitical unrest that may cause us not to be able to successfully operate in other countries. Furthermore, we may never be able to operate our production processes in high volume or at the volumes projected, make planned process and equipment improvements, attain projected manufacturing yields or

desired annual capacity, obtain timely delivery of components, or hire and train the additional employees and management needed to scale our operations. Failure to meet these objectives on time and within our planned budget could materially and adversely affect our business, results of operations and financial condition.

Table of Contents

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

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

Our continuing operations will require additional capital which we may not be able to obtain on favorable terms, if at all or without dilution to our stockholders. Since inception, we have incurred significant losses. We expect to continue to incur net losses in the near term. For the year ended December 31, 2017, our cash used in operations was $12.6 million. At December 31, 2017, we had cash and equivalents of $90,000.

Although we have commenced production at our manufacturing facility, we do not expect that sales revenue and cash flows will be sufficient to support operations and cash requirements until we have fully implemented our new strategy of focusing on high value PV products. Additional projected product revenues are not anticipated to result in a positive cash flow position for the year 2018 overall. The Company will need to raise additional capital in order to continue our current level of operations throughout 2018.

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

In addition, the terms of a loan we obtained from the Colorado Housing and Finance Authority (“CHFA”) in connection with our purchase and improvement of our Thornton, Colorado facility contain covenants that limit our ability, without the consent of CHFA, to create or incur additional indebtedness (other than obligations created or incurred in

the ordinary course of business such as working capital financing); merge or consolidate with any other entity; or make loans or advances to our officers, shareholders, directors or employees. The presence of these covenants gives CHFA the ability to bar us from engaging in certain transactions in the future that we may determine are necessary or advisable to meet our business objectives, including debt offerings and acquisitions of or by other companies. If CHFA were to withhold its written consent under these or other circumstances, we could be forced to prepay such loans at a premium, which could adversely affect our business, results of operations and financial condition.

Table of Contents

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

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

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

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

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

Many of our existing and potential competitors have substantially greater financial, technical, manufacturing and other resources than we do. A competitor’s greater size provides them with a competitive advantage because they often can realize economies of scale and purchase certain raw materials at lower prices. Many of our competitors also have greater brand name recognition, established distribution networks and large customer bases. In addition, many of our competitors have well-established relationships with our current and potential partners and distributors and have extensive knowledge of our target markets. As a result of their greater size, these competitors may be able to devote more resources to the research, development, promotion and sale of their products or respond more quickly to

evolving industry standards and changes in market conditions than we can. Our failure to adapt to changing market conditions and to compete successfully with existing or future competitors could materially and adversely affect our business, results of operations and financial condition.

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

Table of Contents

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

The interests of Tertius Financial Group and our CEO Victor Lee may conflict with our interests or your interests now or in the future. As of December 31, 2017, Tertius Financial Group Pte Ltd ("Tertius") owned approximately 3% of our outstanding common stock. Our CEO Victor Lee is a 50% owner and managing director of Tertius. Tertius is an investment firm based in Singapore. Mr. Lee devotes substantially all of his business time to his positions with the Company and does not devote a material amount of his business time to Tertius.

Tertius may from time to time acquire and hold interests in businesses that compete directly or indirectly with us. Tertius also may pursue opportunities (including by acquisition) that may be adverse to, or be in direct or indirect competition with us. Additionally, our potential customers may be competitors of Tertius and our interests in selling to those customers could be divergent from Tertius's competitive interests. So long as Tertius continues to own a significant amount of the outstanding shares of our common stock and Mr. Lee is President and Chief Executive Officer, Tertius may be able to strongly influence or effectively control our decisions,

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

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

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

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

Table of Contents

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

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

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

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

occurrence of future events such as these could limit our ability to sell and distribute our PV modules, and could have a material adverse effect on our business, results of operations and financial condition.

Table of Contents

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

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

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

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

18

Table of Contents

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

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

We have identified material weaknesses in our internal control over financial reporting. If our remedial measures are insufficient to address the material weaknesses, or if additional material weaknesses or significant deficiencies in our internal control over financial reporting are discovered or occur in the future, our consolidated financial statements may contain material misstatements, which could adversely affect our stock price and could negatively impact our results of operations. At December 31, 2016, we concluded that there were material weaknesses in our internal control over financial reporting. A material weakness is a deficiency, or combination of deficiencies, in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of our annual or interim financial statements will not be prevented or detected on a timely basis. See Item 9A in Part II of this Annual Report on Form 10-K for details.

As of December 31, 2017, we concluded that the above mentioned material weakness had been remedied and our internal control over financial reporting was no longer deficient. However, there can be no assurances that we will be able to prevent future control deficiencies (including material weaknesses) from happening that could cause us to incur unforeseen costs, negatively impact our results of operations, cause our consolidated financial results to contain material misstatements, cause the market price of our common stock to decline, damage our reputation or have other potential material adverse consequences.

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

As a public company we are subject to complex legal and accounting requirements that require us to incur substantial expenses, and our financial controls and procedures may not be sufficient to ensure timely and reliable reporting of financial information, which, as a public company, could materially harm our stock price and listing on the OTCBB. As a public company, we are subject to numerous legal and accounting requirements that do not apply to private companies. The cost of compliance with many of these requirements is substantial, not only in absolute terms but, more importantly, in relation to the overall scope of the operations of a small company. Failure to comply with these requirements can have numerous adverse consequences including, but not limited to, our inability to file required

periodic reports on a timely basis, loss of market confidence, delisting of our securities and/or governmental or private actions against us. We cannot assure you we will be able to comply with all of these requirements or the cost of such compliance will not prove to be a substantial competitive disadvantage vis-à-vis our privately held and larger public competitors.

The Sarbanes-Oxley Act of 2002 ("Sarbanes-Oxley") requires, among other things, that we maintain effective internal control over financial reporting and disclosure controls and procedures. In particular, we must perform system and process evaluation and testing of our internal control over financial reporting to allow management to report on the effectiveness of our internal control over financial reporting, as required by Section 404 of Sarbanes-Oxley. Our compliance with Section 404 of Sarbanes-Oxley will require we incur substantial accounting expense and expend significant management efforts. The effectiveness of our controls and procedures may, in the future, be limited by a variety of factors, including:

- Faulty human judgment and simple errors, omissions or mistakes;

Table of Contents

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

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

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

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

The price of our common stock may continue to be volatile. Our common stock is currently traded on the OTCBB Market. The trading price of our common stock from time to time has fluctuated widely and may be subject to similar volatility in the future. For example, during the calendar year ended December 31, 2017, our common stock traded below $0.01. The trading price of our common stock in the future may be affected by a number of factors, including events described in these “Risk Factors.” In recent years, broad stock market indices, in general, and smaller capitalization and PV companies, in particular, have experienced substantial price fluctuations. In a volatile market, we may experience wide fluctuations in the market price of our common stock. These fluctuations may have a negative effect on the market price of our common stock regardless of our operating performance. In the past, following periods of volatility in the market price of a company’s securities, securities class action litigation has often been instituted. A securities class action suit against us could result in substantial costs, potential liabilities and the diversion of management’s attention and resources, and could have a material adverse effect on our financial condition.

Our stockholders may experience significant dilution as a result of shares of our common stock issued pursuant to our currently outstanding securities and existing agreements, and pursuant to new securities that we may issue in the future. We are likely to issue substantial amounts of additional common stock in connection with most of our outstanding convertible preferred stock and convertible notes. We may also issue additional common stock or securities convertible into or exchangeable or exercisable for common stock, in connection with future capital raising transactions.

Most of our outstanding convertible preferred stock and convertible notes contain variable pricing mechanisms. The number of shares that we will issue pursuant to the aforementioned financial instruments will fluctuate based on the price of our common stock. Depending on market liquidity at the time, sales of such shares into the market may cause the trading price of our common stock to fall.

The issuance of material amounts of common stock by us would cause our existing stockholders to experience significant dilution in their investment in our Company. Also, if we obtain additional financing involving the issuance

of equity securities or securities convertible into equity securities, our existing stockholders' investment would be further diluted. Such dilution could cause the market price of our common stock to decline, which could impair our ability to raise additional financing.

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

Table of Contents

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

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

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

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

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

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

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

We own an approximately 138,000 square foot manufacturing and office facility in Thornton, Colorado.

Item 3. Legal Proceedings

On October 21, 2011, we were notified that a complaint (the “Lawsuit”) was filed by Jefferies & Company, Inc. ("Jefferies") against us in state court located in the County and State of New York.

In December 2010, we and Jefferies entered into an agreement (the “Fee Agreement”) pursuant to which Jefferies was hired to act as our financial advisor in relation to certain potential transactions. In the Lawsuit, Jefferies claims it is entitled to receive an investment banking fee of $3.0 million (plus expense reimbursement of approximately $49,000) under the Fee Agreement in connection with the August 2011 investment and strategic alliance transaction (the “Financing”) between us and TFG Radiant. In addition, should it prevail at trial, Jefferies would be able to claim an award for attorney's fees and prejudgment interest in the approximate amount of $1.2 million.

Table of Contents

On April 16, 2014, the parties settled the lawsuit where the Company agreed to pay Jefferies a total of $2.0 million in equal installments over 40 months.

The Company records a liability in its financial statements for costs related to claims, including settlements and judgments, where the Company has assessed that a loss is probable and an amount can be reasonably estimated. The Company accrued $1.7 million, the net present value of the $2.0 million settlement, as of December 31, 2013. As of December 31, 2017, the settlement had been redeemed in full and there was no remaining accrued litigation settlement recorded as a current liability in the Consolidated Balance Sheet.

Item 4. Mine Safety Disclosures

Not applicable.

PART II

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

Market Information

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

Price Range of Common Stock

	High	Low
Fiscal 2016		
First Quarter	$52.0000	$18.4000
Second Quarter	$1.3980	$0.0520
Third Quarter	$0.0850	$0.0130
Fourth Quarter	$0.0243	$0.0025
Fiscal 2017		
First Quarter	$0.0078	$0.0014
Second Quarter	$0.0023	$0.0003
Third Quarter	$0.0026	$0.0004
Fourth Quarter	$0.0018	$0.0007

Holders

As of December 31, 2017, the number of record holders of our common stock was 39. Because many of our shares of common stock are held by brokers and other institutions on behalf of stockholders, we are unable to estimate the total number of stockholders represented by these record holders.

Dividends

The holders of common stock are entitled to receive such dividends as may be declared by our Board of Directors. During the years ended December 31, 2017 and 2016, we did not pay any common stock dividends, and we do not expect to declare or pay any dividends in the foreseeable future. Payment of future dividends will be within the

discretion of our Board of Directors and will depend on, among other factors, our retained earnings, capital requirements, and operating and financial condition.

Item 6. Selected Financial Data

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

Table of Contents

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

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

Overview

We are a company formed to commercialize flexible PV modules using our proprietary technology. For the year ended December 31, 2017, we generated $642 thousand of revenue. Our revenue from product sales accounted for 100% of total revenue as there was no revenue generated from government research and development contracts during the year. As of December 31, 2017, we had an accumulated deficit of $402.5 million.

In 2012, we evolved our business model to include B2C, solution based, PV integrated consumer electronics to our off grid high value solar power generation strategy. In June of 2012, we launched our new line of consumer products under the EnerPlex™ brand, and introduced our first product, the Surfr™, a battery and solar case for the Apple® iPhone® 4/4S smart phone, featuring our ultra-light CIGS thin film technology integrated directly into the case. The case incorporates our ultra-light and thin PV module into a sleek, protective iPhone 4/4S case, along with a thin, life extending, lithium-polymer battery. The case adds minimal weight and size to an iPhone smartphone, yet provides supplemental charging when needed. In August of 2012, we announced the launch of the second version of the Surfr for the Samsung® Galaxy S® III, which provides 85% additional battery life.

In December 2012, we launched the EnerPlex Kickr™ and EnerPlex Jumpr™ product series. The Kickr IV is an extremely portable, compact and durable solar charging device, approximately seven inches by seven inches when folded, and weighs less than half a pound. The Kickr IV provides 6.5 watts of regulated power that can help charge phones, digital cameras, and other small USB enabled devices. The Kickr IV is ideal for outdoor activities such as camping, hiking and mountain climbing as well as daily city use. To complement the Kickr IV, we also released the Jumpr series of portable power banks in December of 2012. The Jumpr series provides a compact power storage solution for those who need to recharge their portable electronics while on the go.

During 2013, the EnerPlex brand rapidly expanded with the addition of two new product series as well as over fifteen new products. In 2013, we introduced further additions to the Jumpr line of portable power banks; releasing the Jumpr Mini and Jumpr Stack in August and the Jumpr Max in September. The latest additions to the Kickr line of portable solar chargers, the Kickr I and Kickr II, were introduced in August at the Outdoor Retailer show. Furthermore, in October 2013, we released our first series of solar integrated backpacks, the EnerPlex Packr™. The Packr is a functional backpack ideal for charging mobile electronic devices while on the go. Also in October of 2013, we introduced the Surfr battery and solar case for the Samsung Galaxy S® 4, and in December, we introduced the Surfr battery and solar case for Apple's iPhone® 5. To complement our flagship product lines, we added an assortment of accessories, all of which can be integrated into the EnerPlex ecosystem of products; such as the LED wand which can be easily plugged into a Jumpr power bank to provide hours of light, or the Travel Adaptor, which enables consumers to charge up their Jumpr power banks from a traditional outlet anywhere in the world.

Beginning in 2013, we aggressively pursued new distribution channels for the EnerPlex brand; these activities have led to placement in a variety of high-traffic ecommerce venues such as www.amazon.com, www.walmart.com,

www.brookstone.com, www.newegg.com, as well as many others including our own e-commerce platform at www.goenerplex.com. The April 2013 placement of EnerPlex products at Fry's Electronics, a US West Coast consumer electronics retailer, represented the company's first domestic retail presence; EnerPlex products were carried in all of Fry's 34 superstores across 9 states.

Throughout 2014, EnerPlex released multiple additions to the Jumpr line of products: including the Jumpr Stack 3, 6 and 9; innovative batteries equipped with tethered micro-USB and Apple Lightning cables with a revolutionary Stack and Charge design, enabling batteries to be charged simultaneously when they are placed on top of one another. Also released in 2014 were the Jumpr Slate series, products which push the boundaries of how thin batteries can be; the Jumpr Slate 10k, at less than 7mm thick was the thinnest lithium polymer battery available when it was released. The Jumpr Slate 5k and 5k Lightning each come with a tethered micro-USB and Lightning cable respectively; freeing consumers from worrying about toting extra cables with them while on the move.

Table of Contents

At Outdoor Retailer 2014, EnerPlex debuted the Generatr Series. The Generatr 1200 and Generatr 100 are lithium-ion based, large format batteries. Lighter and smaller than competitors, the Generatr Series are targeted for consumers who require high-capacity, high-output batteries which remain ultra-portable. Also debuted at Outdoor Retailer was the Commandr 20, a high output solar charger designed specifically to integrate with and charge the Generatr series, allowing consumers to stay out longer without needing to charge their Generatr batteries from a traditional power source. In August 2014, the Kickr II+ and IV+ were also announced, these products represent another evolution in EnerPlex's line of solar products; integrated with a 500mAh battery the Kickr II+ and IV+ are able to provide a constant flow of power even when there are intermittent disruptions in sunlight.

During 2015, we reached an agreement with EVINE Live, one of the premier home shopping networks with TV programming that reaches over 87 million US homes to begin selling EnerPlex products during their broadcasts. EnerPlex launched the Generatr S100 and select other products exclusively with EVINE, EnerPlex also launched the Generatr 1200 launched exclusively with EVINE for a limited period. Also during 2015, EnerPlex expanded its relationship with The Cellular Connection to include over 450 Verizon Wireless Premium Retail Stores; launched its products with two world recognized retailers; The Sports Authority and Cabela's; and launched its products with GovX; the premier online shopping destination for Military, Law Enforcement and Government agencies. Internationally, EnerPlex products became available in the United Kingdom via the brand's launch with 172 Maplin's stores throughout the country.

In 2016, EnerPlex launched the new emergency sales vertical, partnering with Emergency Preparedness eCommerce leader, Emergency Essentials, and we announced new breakthroughs in the Company's line of high-voltage solar products, designed specifically for high-altitude and space markets. Also during the first quarter of 2016, the Company announced the launch of select products on the GSA Advantage website; allowing Federal employees, including members of all branches of the US Military, to directly purchase Ascent and EnerPlex products including: the MilPak E, Commandr 20, Kickr 4 and WaveSol solar modules.

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

In February 2017 Ascent announced the discontinuation of our EnerPlex consumer business by disposing of the EnerPlex brand, and related intellectual properties and trademarks, to our battery product supplier, Sun Pleasure Co. Limited ("SPCL"). This transaction was completed in an effort to better allocate our resources and to continue to focus on our core strength in the high-value specialty PV market. Following the transfer, Ascent will no longer be producing or selling Enerplex-branded consumer products. Ascent will focus on its photovoltaic business and will supply solar PV products to SPCL, supporting the continuous growth of EnerPlex™ with Ascent's proprietary and award-winning thin-film solar technologies and products.

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

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

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

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

Table of Contents

Commercialization and Manufacturing Strategy

Our proprietary manufacturing process deposits multiple layers of materials, including a thin film of highly efficient Copper-Indium-Gallium-diSelenide (“CIGS”) semiconductor material, on a flexible, lightweight, plastic substrate using a roll-to-roll manufacturing process and then laser patterns the layers to create interconnected PV cells, or PV modules, in a process known as monolithic integration. Our monolithic integration techniques enable us to form complete PV modules with less or no costly back end assembly of intercell connections. Traditional PV manufacturers assemble PV modules by bonding or soldering discrete PV cells together. This manufacturing step typically increases manufacturing costs and at times proves detrimental to the overall yield and reliability of the finished product. By reducing or eliminating this added step using our proprietary monolithic integration techniques, we believe we can achieve cost savings in, and increase the reliability of, our PV modules. We believe our technology and manufacturing process, which results in a lighter, flexible module package, provides us with unique market opportunities relative to both the crystalline silicon (“c-Si”) based PV manufacturers that currently lead the PV market, as well as other thin-film PV manufacturers that use substrate materials such as glass, stainless steel or other metals that can be heavier and more rigid than plastics.

Currently, we are producing OEM and consumer oriented products focusing on charging devices powered by our solar modules. Products in these markets are priced based on the overall value proposition rather than a commodity-style price per watt basis. We continue to develop new consumer products and we have adjusted our utilization of our equipment to meet our near term forecast sales. We plan to continue the development of our current PV technology to increase module efficiency, improve our manufacturing tooling and process capabilities and reduce manufacturing costs. We also plan to continue to take advantage of research and development contracts to fund a portion of this development.

Related Party Activity

On February 2, 2012, we announced the appointment of Victor Lee as President and Chief Executive Officer. Mr. Lee has served on our Board since November 2011 and is currently the managing director of Tertius Financial Group Pte Ltd ("TFG").

TFG is a Singapore based entity controlled and 50% owned by Ascent’s President & CEO, Victor Lee, and owns approximately 3% of the Company's outstanding shares at December 31, 2017.

On August 29, 2016, the Company entered into a note purchase agreement with Tertius Financial Group Pte. Ltd. ("TFG”) for the private placement of $330,000 of the Company’s original issue discount notes with an original maturity date of November 29, 2016. The notes bear interest of 6% per annum and principal and interest on the notes are payable upon maturity. The notes are unsecured and not convertible into equity shares of the Company.

On December 6, 2016, the Company issued a new $600,000 original issue discount note to TFG in exchange for (i) $200,000 of additional gross proceeds and (ii) cancellation of the existing outstanding $330,000 note. The new TFG note bears interest at a rate of 6% per annum and matures on December 31, 2017. Principal and interest on the new TFG note is payable at maturity. Following the transaction, the outstanding balance of the new note was $602,000 (including accrued and unpaid interest) with a discount of $60,000.

On January 19, 2017, the Company issued 333,333,333 shares of unregistered common stock in a private placement to TFG pursuant to a Securities Purchase Agreement (the “SPA”).

Pursuant to the SPA, the Company issued the 333,333,333 shares to TFG in exchange for cancellation of its $600,000 promissory note (including accrued interest of approximately $4,340) that was issued by the Company on

December 6, 2016. The SPA does not provide any registration rights for the shares issued to TFG.

Significant Trends, Uncertainties and Challenges

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

- Our ability to generate customer acceptance of and demand for our products;
- Successful ramping up of commercial production on the equipment installed;
- Our products are successfully and timely certified for use in our target markets;
- Successful operating of production tools to achieve the efficiencies, throughput and yield necessary to reach our cost targets;

Table of Contents

- The products we design are saleable at a price sufficient to generate profits;
- Our ability to raise sufficient capital to enable us to reach a level of sales sufficient to achieve profitability on terms favorable to us;
- Effective management of the planned ramp up of our domestic and international operations;
- Our ability to successfully develop and maintain strategic relationships with key partners, including OEMs, system integrators, distributors, retailers and e-commerce companies, who deal directly with end users in our target markets;
- Our ability to maintain the listing of our common stock on the OTCQB Venture Market;
- Our ability to implement remediation measures to address material weaknesses in internal control;
- Our ability to achieve projected operational performance and cost metrics;
- Our ability to enter into commercially viable licensing, joint venture, or other commercial arrangements; and
- Availability of raw materials.

Basis of Presentation: The accompanying consolidated financial statements have been derived from the accounting records of Ascent Solar Technologies, Inc., Ascent Solar (Asia) Pte. Ltd., and Ascent Solar (Shenzhen) Co., Ltd. (collectively, "the Company") as of December 31, 2017 and December 31, 2016, and the results of operations for the years ended December 31, 2017 and 2016. Ascent Solar (Shenzhen) Co., Ltd. is wholly owned by Ascent Solar (Asia) Pte. Ltd., which is wholly owned by Ascent Solar Technologies, Inc. All significant inter-company balances and transactions have been eliminated in the accompanying consolidated financial statements.

Significant Accounting Policies

Related Party Transactions: One of the Company's named shareholders is Tertius Financial Group Pte Ltd of which Mr. Victor Lee, President and Chief Executive Officer of the Company, is Managing Director and 50% shareholder. Please refer to Note 11 for further information on transactions with Tertius Financial Group.

Revenue Recognition:

Product revenue - We generated product revenues of $642 thousand for the year ended December 31, 2017. Product revenue is generated from commercial sales of flexible PV modules and PV integrated consumer electronics. Products are sold through our own website and through the use of online retailers and distributors. Revenue is recognized as products are shipped or delivered and title has transferred to the customer. In certain instances, we have agreed to refund a portion of the purchase price to customers if we decrease our standard retail price. We estimate the effect of this price protection and record the difference as a reduction of revenue at the time of sale. We also, in certain instances, have provided customers with a right of return provision. In these instances, we defer the recognition of revenues until the provision period has expired. Estimated costs of returns and allowances, other than those specifically pertaining to a right of return provision, and discounts are accrued as a reduction to sales when revenue is recognized.

Some of our distributor relationships allow for discounts to be taken for prompt payment and to fund co-op advertising costs. These discounts are taken as credits against outstanding receivable balances and recorded net of revenue. Large co-op advertising campaigns, funded either by cash payments by us or as credits against outstanding receivables, are recorded as advertising expense included in selling, general and administrative costs if, and only if, the following criteria are met: 1) we received an identifiable benefit (goods or services) in exchange for the consideration, with the identifiable benefit being sufficiently separable from the distributor's purchase of our products; and 2) we can reasonably estimate the fair value of the identifiable benefit. If the amount of consideration paid by us exceeds the estimated fair value of the benefit received, that excess amount shall be characterized as a reduction of revenue.

Government contracts revenue - Revenue from governmental research and development contracts is generated under terms that are cost plus fee or firm fixed price. Revenue from cost plus fee contracts is recognized as costs are incurred on the basis of direct costs plus allowable indirect costs and an allocable portion of the fixed fee. Revenue from firm fixed price contracts is recognized under the percentage-of-completion method of accounting, with costs and estimated profits included in contract revenue as work is performed. If actual and estimated costs to complete a contract indicate a loss, provision is made currently for the loss anticipated on the contract. There was no revenue associated with government contracts recorded in 2017 and approximately $48,000 recorded in 2016.

Convertible Preferred Stock: The Company evaluates its preferred stock instruments under FASB ASC 480, "Distinguishing Liabilities from Equity" to determine the classification, and thereby the accounting treatment, of the instruments. Please refer to Notes 16, 17, 18, 19, 21, 21, and 22 for further discussion on the classification of each instrument.

Table of Contents

Derivatives: The Company evaluates its financial instruments under FASB ASC 815, "Derivatives and Hedging" to determine whether the instruments contain an embedded derivative. When an embedded derivative is present, the instrument is evaluated for a fair value adjustment upon issuance and at the end of every period. Any adjustments to fair value are treated as gains and losses in fair values of derivatives and are recorded on the Statement of Operations. Please refer to Notes 10, 12, 13, 14, 15, 16, 17, 18, 19, 20, and 21 for further discussion on the embedded derivatives of each instrument.

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

Due to the sale of the EnerPlex brand and the re-purposing of our work-in-process inventory, we are unable to estimate the recoverability of all of our work-in process inventory values, resulting in a lower-cost-to-market analysis and reserve for impairment. An expense of approximately $363,000 was recorded to inventory impairment costs for the year ended December 31, 2017, as a result of the lower of cost or market analysis. There were no lower of cost or market adjustments during the year ended December 31, 2016.

Impairment of Long-lived assets: We analyze our long-lived assets (property, plant and equipment) and definitive-lived intangible assets (patents) for impairment, both individually and as a group, whenever events or changes in circumstances indicate the carrying amount of the assets may not be recoverable. Events that might cause impairment would include significant current period operating or cash flow losses associated with the use of a long-lived asset or group of assets combined with a history of such losses, significant changes in the manner of use of assets and significant negative industry or economic trends. An undiscounted cash flow analysis is calculated to determine if an impairment exists. If an impairment is determined to exist, any related loss is calculated using the difference between the fair value and the carrying value of the assets. During the years ended December 31, 2017 and 2016, we did not incur impairments of our manufacturing facilities and equipment.

Research, Development and Manufacturing Operations Costs: Research, development and manufacturing operations expenses were $4.8 million and $6.6 million for the years ended December 31, 2017 and 2016, respectively. Research, development and manufacturing operations expenses include: 1) technology development costs, which include expenses incurred in researching new technology, improving existing technology and performing federal government research and development contracts, 2) product development costs, which include expenses incurred in developing new products and lowering product design costs, and 3) pre-production and production costs, which include engineering efforts to improve production processes, material yields and equipment utilization, and manufacturing efforts to produce saleable product. Research, development and manufacturing operations costs are expensed as incurred, with the exception of costs related to inventoried raw materials, work-in-process and finished goods, which are expensed as Cost of revenue as products are sold.

Share-Based Compensation: We measure and recognize compensation expense for all share-based payment awards made to employees, officers, directors, and consultants based on estimated fair values. The value of the portion of the award that is ultimately expected to vest is recognized as expense over the requisite service period in our statements of operations included herein. Share-based compensation is based on awards ultimately expected to vest, reduced by estimated forfeitures. Forfeitures are estimated at the time of grant and revised, as necessary, in subsequent periods if actual forfeitures differ from those estimates. For purposes of determining estimated fair value of share-based payment awards on the date of grant, we use the Black-Scholes option-pricing model (“Black-Scholes Model”) for option awards.

The Black-Scholes Model requires the input of highly subjective assumptions. Because our employee stock options may have characteristics significantly different from those of traded options, and because changes in the subjective input assumptions can materially affect the fair value estimate, in management's opinion, the existing models may not provide a reliable single measure of the fair value of our employee stock options. Management will continue to assess the assumptions and methodologies used to calculate estimated fair value of share-based compensation. Circumstances may change and additional data may become available over time, which result in changes to these assumptions and methodologies, which could materially impact our fair value determination. We estimate the fair value of our restricted stock awards at our stock price on the grant date.

Table of Contents

The accounting guidance for share-based compensation may be subject to further interpretation and refinement over time. There are significant differences among option valuation models, and this may result in a lack of comparability with other companies that use different models, methods and assumptions. If factors change and we employ different assumptions in the accounting for share-based compensation in future periods, or if we decide to use a different valuation model, the compensation expense we record in the future may differ significantly from what we have recorded in the current period and could materially affect our loss from operations, net loss and net loss per share.

Use of Estimates: The preparation of financial statements in conformity with U.S. generally accepted accounting principles ("GAAP") requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Recently Issued Accounting Standards

In May 2014, the FASB issued ASU No. 2014-09, Revenue from Contracts with Customers (Topic 606). The update will establish a comprehensive revenue recognition standard for virtually all industries in GAAP. ASU 2014-09 will change the amount and timing of revenue and cost recognition, implementation, disclosures and documentation. In August 2015, the FASB issued ASU No. 2015-14, Revenue from Contracts with Customers (Topic 606): Deferral of Effective Date. The amendments in ASU 2015-14 defer the effective date of ASU 2014-09 for all entities by one year. ASU 2014-09 is now effective for the Company in fiscal year 2018. The Company has evaluated ASU 2014-09, and does not believe it will have a material effect on the Company’s consolidated financial statements.

In February 2016, the FASB issued ASU No. 2016-02, Leases (Topic 842). ASU 2016-02 requires lessees to recognize all leases, including operating leases, on the balance sheet as a lease asset or lease liability, unless the lease is a short-term lease. ASU 2016-02 also requires additional disclosures regarding leasing arrangements. ASU 2016-02 is effective for interim periods and fiscal years beginning after December 15, 2018, and early application is permitted. The Company continues to evaluate the impact, that the adoption of this guidance will have on its consolidated financial statements.

In March 2016, the FASB issued ASU 2016-09, Improvements to Employee Share-Based Payment Accounting, which simplifies several aspects of the accounting for share-based payment transactions, including 1) accounting for income taxes, 2) classification of excess tax benefits in the statement of cash flows, 3) forfeitures, 4) minimum statutory tax withholding requirements, 5) cash flow classification of employee taxes withheld in the form of shares, 6) the practical expedient for estimating the expected term, and 7) intrinsic value. The guidance is effective for annual reporting periods beginning after December 15, 2016, and interim periods within those annual periods. The implementation of ASU 2016-09 did not have a material effect on the Company's consolidated financial statements.

In May 2017, the FASB issued ASU No. 2017-09, Compensation - Stock Compensation (Topic 718). ASU 2017-09 provides guidance about which changes to the terms or conditions of a share-based payment award require an entity to apply modification accounting in Topic 718. ASU 2017-09 is effective for interim periods and fiscal years beginning after December 15, 2017, and early application is permitted. The Company continues to evaluate the impact, if any, that the adoption of this guidance will have on its consolidated financial statements, but does not expect the effect, if any, to be material.

In July 2017, the FASB issued ASU No. 2017-11 Part I, Earnings Per Share (Topic 260), Distinguishing Liabilities from Equity (Topic 480), Derivatives and Hedging (Topic 815). ASU 2017-11 Part I changes the classification analysis of certain equity linked financial instruments with down round features. ASU 2017-11 Part I is effective, for public business entities, for interim periods and fiscal years beginning after December 15, 2018, and early application

is permitted. The Company is currently evaluating the impact, if any, that the adoption of this guidance will have on its consolidated financial statements.

Results of Operations

Comparison of the Years Ended December 31, 2017 and 2016

Revenues. Our revenues were $642,000 for the year ended December 31, 2017 compared to $1,747,000 for the year ended December 31, 2016, a decrease of $1,105,000. The following factors contributed to this decrease:

1. Net product revenues were $642,000 for the year ended December 31, 2017 compared to $1,700,000 for the year ended December 31, 2016, a decrease of $1,058,000. The decrease in product sales is largely the result of our sale of the Enerplex brand of products.

Table of Contents

2. The Company did not have any revenues attributable to government research and development contracts during the year ended December 31, 2017, compared to $48,000 during the year ended December 31, 2016.

Cost of revenues. Our Cost of revenues for the year ended December 31, 2017 was $2,815,000 compared to $5,844,000 for the year ended December 31, 2016, a decrease of $3,029,000. The decrease in cost of revenues is mainly due to the decrease in materials and labor costs as a result of a decrease in production for the year ended December 31, 2017 compared to 2016. Cost of revenues for the year ended December 31, 2017 is comprised of materials and freight of $883,000, direct labor of $49,000, and overhead of $1,883,000. Management believes our factory is currently significantly under-utilized, and a substantial increase in revenue would result in marginal increases to Direct Labor and Overhead included in the Cost of revenues. As such management's focus going forward is to improve gross margin through increased sales and improved utilization of our factory. We are currently pursuing high-value PV markets.

Research, development and manufacturing operations costs. Research, development and manufacturing operations costs were $4,821,000 for the year ended December 31, 2017 compared to $6,627,000 for the year ended December 31, 2016, a decrease of $1,806,000. Research, development and manufacturing operations costs include costs incurred for product development, pre-production and production activities in our manufacturing facility. Research, development and manufacturing operations costs also include costs related to technology development and governmental contracts. The following factors contributed to the decrease in research, development, and manufacturing operations expenses during the year ended December 31, 2017:

1. Personnel and facility related expenses decreased approximately $1,675,000 as compared to the year ended December 31, 2016. The decrease in personnel related costs was primarily due to a reduction in headcount.
2. Consulting and contract services decreased approximately $13,000 compared to the year ended December 31, 2016. The year to year decrease in expense was primarily attributed to the reduced number of contractors during the year ended December 31, 2017.
3. Materials and equipment related expenses decreased approximately $119,000 compared to the year ended December 31, 2016. The decrease in expense was primarily due to the reserve against WIP inventory as a result of our transition from the retail consumer electronics market to high-value PV markets.

Inventory impairment costs. Due to the sale of the EnerPlex brand and the re-purposing of our work-in-process inventory, we are unable to estimate the recoverability of all of our work-in process inventory values, resulting in a lower-cost-to-market analysis and reserve for impairment. An expense of approximately $363,000 was recorded to inventory impairment costs for the year ended December 31, 2017.

Selling, general and administrative. Selling, general and administrative expenses were $5,598,000 for the year ended December 31, 2017, compared to $10,305,000 for the year ended December 31, 2016, a decrease of $4,707,000. The following factors contributed to the decrease in selling, general, and administrative expenses during 2017:

1. Personnel and facility related costs decreased approximately $1,960,000 during the year ended December 31, 2017, compared to the year ended December 31, 2016. The overall decrease in personnel related costs was primarily due a lower headcount for the year ended December 31, 2017.
2. Marketing and related expenses decreased approximately $1,975,000 during the year ended December 31, 2017, compared to the year ended December 31, 2016. The decrease in Marketing and related expenses is due to reduced marketing, advertising, and promotional activities during the year ended December 31, 2017, which is the direct result of changing our main focus from the retail consumer electronics market to higher-value PV markets.
3. Consulting and contract services decreased approximately $252,000 during the year ended December 31, 2017, compared to the year ended December 31, 2016. The decrease was a result of decreased consulting expenses related to our financing efforts.

4. Legal expenses decreased approximately $487,000 during the year ended December 31, 2017, compared to the year ended December 31, 2016. The primary reasons for the decrease is due to reductions in both legal expenses related to our patents and general legal expenses related to financing efforts.
5. Bad debt expense decreased approximately $122,000 during the year ended December 31, 2017, compared to the year ended December 31, 2016. This decrease is due to payments and settlements against existing reserves which were offset by additional reserves for customers whose accounts were greater than 120 days overdue.
6. Public company expenses decreased approximately $85,000 during the year ended December 31, 2017, compared to the year ended December 31, 2016. This decrease is primarily due to a decrease in public relations expense.

Table of Contents

7. Settlement expenses for the year ended December 31, 2017 were approximately $174,000. These expenses consisted of a settlement of $23,000 related to an alleged Proposition 65 violation and aggregate settlements of $151,000 with former EnerPlex customers regarding a return of product.

Depreciation expense. Depreciation expense for the years ended December 31, 2017 and 2016 was $1,194,000 and $3,600,000, respectively. The decrease of $2,406,000 was mainly the result of property, plant and equipment being fully depreciated during the year ended December 31, 2017, offset slightly by amortization of new capitalized intellectual property.

Other Income/(Expense), net. Other Income/(Expense) was $4,412,075 net expense for the year ended December 31, 2017, compared to $14,222,231 net expense for the year ended December 31, 2016, a decrease of $9,810,156. The following factors contributed to the increase in other income/(expense), net during 2017:

1. Interest Expense decreased $1,384,000 compared to 2016. The decrease is primarily due to an decrease of non-cash interest expense and amortization of debt discounts related to convertible and promissory notes and Preferred Stock. The non-cash portion of interest expense for the year ended December 31, 2017 was $5,147,000.
2. Warrant expense increased by approximately $346,000 as compared to the year ended December 31, 2016. This increase is due to the issuance of warrants during the year ended December 31, 2017, related to redemption agreements, settlement agreements, and the engagement of outside professional services.
3. Other income, net increased $492,000. This increase is comprised of an increase in gain on sale of assets of $1,128,000, primarily related to the transfer of the EnerPlex IP, offset by induced conversion costs of $636,000 on several of the financial instruments.
4. Gains and losses on change in fair value of derivatives and on extinguishment of liabilities, net was a gain of $1,878,000 for the year ended December 31, 2017, an increase of $8,280,000 compared to the net loss of $6,402,000 for the year ended December 31, 2016. The change in this non-cash item is the result of an increase of $3,487,000 in the gain on change in the fair value of our embedded derivative instruments during 2017, and a decrease of $4,793,000 in the loss on extinguishment of liabilities related to conversions of certain convertible notes and preferred stock in the same comparative periods.

Net Loss. Our net loss was $18,560,000 for the year ended December 31, 2017, compared to a Net Loss of $38,851,000 for the year ended December 31, 2016, a decrease in Net Loss of $20,291,000. The decrease in Net Loss for the year ended December 31, 2017 can be summarized in variances in significant account activity as follows:

Table of Contents

	(Increase) decrease in Net Loss For the Year Ended December 31, 2017 Compared to the Year Ended December 31, 2016
Revenues	$ (1,105,000)
Cost of Revenue	3,029,000
Research, development and manufacturing operations	
Materials and Equipment Related Expenses	119,000
Personnel and Facility Related Expenses	1,675,000
Consulting and Contract Services	13,000
Inventory impairment costs	(363,000)
Selling, general and administrative expenses	
Personnel, Administrative, and Facility Related Expenses	1,960,000
Marketing Related Expenses	1,975,000
Legal Expenses	487,000
Public Company Costs	85,000
Bad Debt Expense	122,000
Consulting and Contract Services	252,000
Settlement Costs	(174,000)
Depreciation and Amortization Expense	2,406,000
Other Income/Expense	
Interest Expense	1,384,000
Other Income/Expense	492,000
Warrant Expense	(346,000)
Non-Cash Change in Fair Value of Derivative Liabilities and Gain/Loss on Extinguishment of Liabilities, net	8,280,000
Decrease to Net Loss	$ 20,291,000

Liquidity and Capital Resources

During the years ended December 31, 2017 and 2016, the Company entered into multiple financing agreements to fund operations. Further discussion of these transactions can be found in Notes 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, and 22.

We have continued PV production at our manufacturing facility. We do not expect sales revenue and cash flows will be sufficient to support operations and cash requirements until we have fully implemented our new consumer products strategy. Changes in the level of expected operating losses, the timing of planned capital expenditures or other factors may negatively impact cash flows and reduce current cash and investments faster than anticipated. During 2017 we used $12.6 million in cash for operations, or an average of $3.1 million per quarter. During the fourth quarter of 2017 we used $1.9 million in cash for operations. Our primary significant long term obligation consists of a note payable of $5.5 million to a financial institution secured by a mortgage on our headquarters and manufacturing building in Thornton, Colorado. Total payments of $0.7 million, including principal and interest, will come due in 2017.

Additional projected product revenues are not anticipated to result in a positive cash flow position for the year 2018 overall. As such, cash liquidity sufficient for the year ending December 31, 2018 will require additional financing. Subsequent to the year ended December 31, 2017 the Company completed certain other financing transactions. Please

refer to Note 30 for further information on these transactions.

Table of Contents

The Company continues to accelerate sales and marketing efforts related to its PV strategy by focusing on the Company's propriety technology. The Company has begun activities related to securing additional financing through strategic or financial investors, but there is no assurance the Company will be able to raise additional capital on acceptable terms or at all. If the Company's revenues do not increase rapidly, and/or additional financing is not obtained, the Company will be required to significantly curtail operations to reduce costs and/or sell assets. Such actions would likely have an adverse impact on the Company's future operations. As a result of the Company's recurring losses from operations, and the need for additional financing to fund its operating and capital requirements, there is uncertainty regarding the Company's ability to maintain liquidity sufficient to operate its business effectively, which raises substantial doubt as to the Company's ability to continue as a going concern. Please refer to Note 4 for further discussion.

Statements of Cash Flows Comparison of the Years Ended December 31, 2017 and 2016

For the year ended December 31, 2017, our cash used in operations was $12.6 million compared to $16.9 million for the year ended December 31, 2016, a decrease of $4.3 million. The decrease is primarily the result of reduced expenses from operations during the current year. For the year ended December 31, 2017, investing activities resulted in cash provided of $0.1 million compared to investing activities using $0.2 million in cash during the year ended December 31, 2016. This improvement was the result of proceeds of $0.2 million on the sale of our Enerplex intellectual property, and reduced spending on capital assets and patents. During the year ended December 31, 2017, negative operating cash flows of $12.6 million were funded through $5.5 million in new debt issuances and $9.0 million from the issuance of stock, offset by repayments on debt of approximately $2.1 million.

Contractual Obligations

The following table presents our contractual obligations as of December 31, 2017. Our long-term debt obligation is related to our building loan and includes both principal and interest. Our purchase obligations include orders for equipment, inventory and operating expenses.

		Payments Due by Year (in thousands)			
Contractual Obligations	Total	Less Than 1 Year	1-3 Years	3-5 Years	More Than 5 Years
Long-term debt obligations	$7,702	$694	$ 2,081	$ 2,081	$ 2,846
Operating lease obligations	87	59	14	14	—
Purchase obligations	443	443	—	—	—
Total	$8,232	$1,195	$ 2,095	$ 2,095	$ 2,846

Off Balance Sheet Transactions

As of December 31, 2017, we did not have any off balance sheet arrangements as defined in Item 303(a)(4)(ii) of Regulation S-K.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Foreign Currency Exchange Risk

Historically, we have purchased manufacturing equipment internationally, which exposes us to foreign currency risk.

From time to time we enter into foreign currency fair value hedges utilizing forward contracts designed to match scheduled contractual payments to equipment suppliers. Our objective is to fix the dollar amount of our foreign currency denominated manufacturing equipment purchases at the time of order. Although our hedging activity is

designed to fix the dollar amount to be expended, the asset purchased is recorded at the spot foreign currency rate in effect as of the date of the payment to the supplier. The difference between the spot rate and the forward rate has been reported as gain or loss on forward contract. We cannot accurately predict future exchange rates or the overall impact of future exchange rate fluctuations on our business, results of operations and financial condition. All forward contracts entered into by us have been settled on the contract settlement dates, the last of which was settled in December 2009. We held no forward contracts during the years ended December 31, 2017 and 2016.

We hold no significant funds and have no future obligations denominated in foreign currencies as of December 31, 2017.

Table of Contents

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

Interest Rate Risk

Our exposure to market risks for changes in interest rates relates primarily to our cash equivalents and investment portfolio. As of December 31, 2017, our cash equivalents consisted only of operating accounts held with financial institutions. From time to time, we hold restricted funds, money market funds, investments in U.S. government securities and high quality corporate securities. The primary objective of our investment activities is to preserve principal and provide liquidity on demand, while at the same time maximizing the income we receive from our investments without significantly increasing risk. The direct risk to us associated with fluctuating interest rates is limited to our investment portfolio, and we do not believe a change in interest rates will have a significant impact on our financial position, results of operations, or cash flows.

Credit Risk

From time to time, we hold certain financial and derivative instruments that potentially subject us to credit risk. These consist primarily of cash, cash equivalents, restricted cash, investments, and forward foreign currency option contracts. We are exposed to credit losses in the event of nonperformance by the counter parties to our financial and derivative instruments. We place cash, cash equivalents, investments and forward foreign currency option contracts with various high quality financial institutions, and exposure is limited at any one institution. We continuously evaluate the credit standing of our counter party financial institutions.

Item 8. Financial Statements and Supplementary Data

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

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

On November 15, 2017, following the completion of the merger with Moss Adams, LLP, Hein & Associates, LLP (“Hein”) informed Ascent Solar Technologies, Inc. (“ASTI” or the “Company”) of its resignation as the Company’s independent registered public accounting firm, effective immediately, which resignation was accepted by the audit committee of ASTI’s board of directors on November 16, 2017.

The reports of Hein on the financial statements of the Company for the past two fiscal years ended December 31, 2016 and 2015 did not contain an adverse opinion or disclaimer of opinion, nor were they qualified or modified as to uncertainty, audit scope or accounting principles, with the exception of providing a qualification as to the Company’s ability to continue as a going concern in the Company's financial statements for the fiscal years ended December 31, 2016 and December 31, 2015.

The decision to accept the resignation of Hein was approved by the Company’s audit committee and board of directors.

Except as described below, during 2015 and 2016, the subsequent interim periods thereto, and through November 15, 2017, the date of Hein’s resignation, (a) the Company and Hein had no disagreements on any matter of accounting principles or practices, financial statement disclosure, or auditing scope or procedure, which disagreements, if not resolved to the satisfaction of Hein, would have caused Hein to make reference to the matter in their reports, and (b)

there were no “reportable events” as described in Item 304(a)(1)(v) of Regulation S-K.

In its quarterly report to the audit committee dated August 15, 2017, Hein noted that the Company’s management and Hein had initially disagreed over the accounting for conversions of the Company’s Series K preferred stock into common stock. Ultimately, the Company’s management agreed with the accounting treatment proposed by Hein with respect to this issue, which was reflected in the Company’s financial statements filed in its Form 10-Q for the period ended June 30, 2017. Accordingly, the Company and Hein consider this matter to be resolved. The Company’s audit committee did discuss the subject matter of this disagreement with Hein.

The Company has authorized Hein to fully respond to the inquiries of any successor accountant concerning the subject matter of any disagreements.

Table of Contents

On December 14, 2017, the Company's audit committee and board of directors approved the engagement of Haynie & Company ("Haynie") as our new independent registered public accounting firm to audit and review the Company's financial statements.

During 2015, 2016, and 2017, the subsequent interim periods thereto, and through the filing date of this report neither the Company, nor someone on its behalf, has consulted Haynie regarding either (i) the application of accounting principles to a specified transaction, either completed or proposed, or the type of audit opinion that might be rendered on the Company's financial statements, and no written report or oral advice was provided to the Company that Haynie concluded was an important factor considered by the Company in reaching a decision as to the accounting, auditing or financial reporting issue; or (ii) any matter that was the subject of a disagreement or reportable event (within the meaning of Item304(a) of Regulation S-K and Item304(a)(1)(v) of Regulation S-K, respectively).

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures designed to ensure that information required to be disclosed in our reports filed or submitted under the Securities Exchange Act of 1934, as amended (the "Exchange Act") is recorded, processed, summarized and reported within the time periods specified in Securities and Exchange Commission rules and forms. Our disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed in our reports filed under the Exchange Act is accumulated and communicated to management as appropriate to allow timely decisions regarding required disclosures. Our management conducted an evaluation required by Rules 13a-15 and 15d-15 under the Exchange Act of the effectiveness of our disclosure controls and procedures as defined in Rules 13a-15 and 15d-15 under the Exchange Act as of December 31, 2017. Based on this evaluation, our management concluded the design and operation of our disclosure controls and procedures were effective as of December 31, 2017.

Management's Report on Internal Control over Financial Reporting

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

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

Under the supervision of the Audit Committee of the Board of Directors and with the participation of our management, including our Chief Executive Officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting using the criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on this evaluation, our management concluded our internal control over financial reporting was effective as of December 31, 2017. Our management reviewed the results of its assessment with the Audit Committee.

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

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

Table of Contents

Material Weakness Identified in 2016

Based on our assessment and the criteria used, management concluded that our internal control over financial reporting as of December 31, 2016 was not effective due to the material weaknesses described as follows:

- The Company was understaffed and did not have sufficiently trained resources with the technical expertise to research and account for the Company's complex capitalization and multiple complex capital raising and equity transactions. This deficiency arose primarily from staff turnover including the Company’s failure to more quickly replace its Director of Financial Planning and Reporting, who left the Company for a new position in November, 2016.

As a consequence, the Company did not have effective process level control activities over the following:

- Accounting for the Company's convertible debt and preferred stock transactions was lacking for the preparation of the December 31, 2016 financial statements. Many of the special accounting issues specific to debt and equity financing have become increasingly complex and time-consuming, and require extensive expertise to ensure that the accounting and reporting are accurate and in accordance with applicable standards. Given the numerous complex convertible equity financing transactions engaged in by the Company during 2016, the relevant accounting standards require the calculation, monitoring, recalculation and “marking to market” of a wide variety of derivative securities instruments that are deemed to arise from such financing transactions. These complex derivatives calculations are used in order to calculate the intrinsic value of the financial instruments and affect the short term embedded derivative liabilities line item on the Company’s balance sheet and in the change in fair value of derivatives and gain/loss on extinguishment of liabilities line item on the Company’s consolidated statement of operations. As the calculations in question relate to non-cash transactions, there was no impact on the Company's cash, current assets, revenues, operating results, or cash flows.

The control deficiencies described above created a reasonable possibility that a material misstatement to the consolidated financial statements would not be prevented or detected on a timely basis. The control deficiencies described above resulted in material misstatements in the preliminary consolidated financial statements that were corrected prior to the issuance of the consolidated financial statements as of and for the fiscal year ended December 31, 2016.

During 2017, the Company executed the following steps to remedy the material weaknesses from 2016 described below:

- In March 2017, the Company hired a Director of Financial Planning and Reporting with the technical expertise to research and account for the Company's complex capital raising and financial transactions. In addition, the Company is continuously evaluating its personnel needs and other resources to ensure appropriate staffing and enhance its research and technical accounting knowledge base.
- The Company designed and implemented additional procedures in order to assure that the Director of Financial Planning and Reporting and other audit/accounting personnel are more involved with the Company’s financing activities to monitor and earlier identify accounting issues that may be raised by the Company’s ongoing financing activities.

Based on our assessment and the criteria used, management concluded that our internal control over financial reporting as of December 31, 2017 was effective.

Changes in Internal Control Over Financial Reporting

Except for the identification and mitigation of the material weaknesses noted above, there were no other changes in internal control over financial reporting during the year ended December 31, 2017 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

None.

Table of Contents

PART III

Item 10. Directors, Executive Officers and Corporate Governance

Incorporated by reference from the definitive proxy statement for our 2018 annual meeting, which will be filed no later than 120 days after the close of our fiscal year ended December 31, 2017.

Item 11. Executive Compensation

Incorporated by reference from the definitive proxy statement for our 2018 annual meeting, which will be filed no later than 120 days after the close of our fiscal year ended December 31, 2017.

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

Incorporated by reference from the definitive proxy statement for our 2018 annual meeting, which will be filed no later than 120 days after the close of our fiscal year ended December 31, 2017.

Securities Authorized for Issuance under Equity Compensation Plans

The following table sets forth information as of December 31, 2017 relating to all of our equity compensation plans:

	Number of securities to be issued upon exercise of outstanding options, warrants and rights (1)	Weighted average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plans
Equity compensation plans approved by security holders	67,014	$ 41.98	685,323

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

Incorporated by reference from the definitive proxy statement for our 2018 annual meeting, which will be filed no later than 120 days after the close of our fiscal year ended December 31, 2017.

Item 14. Principal Accounting Fees and Services

Incorporated by reference from the definitive proxy statement for our 2018 annual meeting, which will be filed no later than 120 days after the close of our fiscal year ended December 31, 2017.

PART IV

Item 15. Exhibits and Financial Statement Schedules

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

(1) Financial Statements—See Index to Financial Statements at Item 8 of the Annual Report on Form 10-K.
(2) Financial Statement Schedules—Supplemental schedules are not provided because of the absence of conditions under which they are required or because the required information is given in the financial statements or notes thereto.
(3) Exhibits: See Item 15(b) below.

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

Table of Contents

INDEX TO EXHIBITS

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

Exhibit No.	Description
3.1	Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.2 to our Registration Statement on Form SB-2 filed on January 23, 2006 (Reg. No. 333-131216))
3.2	Certificate of Amendment to the Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.1 to our Quarterly Report on Form 10-Q for the quarter ended September 30, 2011)
3.3	Certificate of Amendment to the Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed February 11, 2014)
3.4	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated August 26, 2014. (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed September 2, 2014)
3.5	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated October 27, 2014 (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K dated October 28, 2014)
3.6	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated December 22, 2014. (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K dated December 23, 2014)
3.7	Second Amended and Restated Bylaws (incorporated by reference to Exhibit 3.2 to our Current Report on Form 8-K filed on February 17, 2009)
3.8	First Amendment to Second Amended and Restated Bylaws (incorporated by reference to Exhibit 3.3 to our Quarterly Report on Form 10-Q for the quarter ended September 30, 2009)
3.9	Second Amendment to Second Amended and Restated Bylaws (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed January 25, 2013)
3.10	Third Amendment to Second Amended and Restated Bylaws (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed December 18, 2015)
3.11	Certificate of Designations of Preferences, Rights and Limitations of Series F 7% Preferred Stock (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed January 20, 2016)
3.12	Certificate of Designations of Preferences, Rights and Limitations of Series G 10% Preferred Stock (incorporated by reference to Exhibit 2 to Exhibits 10.5 and 10.6 to our Current Report on Form 8-K filed May 2, 2016).
3.13	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated May 26, 2016 (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed June 2, 2016)

Table of Contents

Exhibit No.	Description
3.14	Certificate of Designations of Preferences, Rights and Limitations of Series H 7% Preferred Stock (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed June 9, 2016)
3.15	Certificate of Designations of Preferences, Rights and Limitations of Series I Preferred Stock (incorporated by reference to Exhibit 2 to Exhibit 10.1 to our Current Report on Form 8-K filed July 28, 2016)
3.16	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated September 15, 2016 (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed September 16, 2016)
3.17	Certificate of Designations of Preferences, Rights and Limitations of Series J Preferred Stock (incorporated by reference to Exhibit 2 to Exhibit 10.1 to our Current Report on Form 8-K filed September 23, 2016)
3.18	Certificate of Amendment to Series G Certificate of Designations (incorporated by reference to Exhibit 3.2 to our Current Report on Form 8-K filed September 23, 2016)
3.19	Certificate of Amendment to Series F Certificate of Designations (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed October 11, 2016)
3.20	Certificate of Designations of Preferences, Rights and Limitations of Series J-1 Preferred Stock (incorporated by reference to Exhibit 2 to Exhibit 10.1 to our Current Report on Form 8-K filed October 20, 2016)
3.21	Certificate of Designations of Preferences, Rights and Limitations of Series K Preferred Stock (incorporated by reference to Exhibit 2 to Exhibit 10.1 to our Current Report on Form 8-K filed February 14, 2017)
3.22	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company, dated March 16, 2017 (incorporated by reference to Exhibit 3.2 to our Current Report on Form 8-K filed March 17, 2017)
4.1	Form of Common Stock Certificate (incorporated by reference to Exhibit 4.1 to our Registration Statement on Form SB-2 filed on January 23, 2006 (Reg. No. 333-131216))
4.2	Certificate of Designations of Series A Preferred Stock (filed as Exhibit 4.2 to our Registration Statement on Form S-3 filed July 1, 2013 (Reg. No. 333-189739))
4.3	Form of Warrant (filed as Exhibit 4.3 to our Registration Statement on Form S-3 filed July 1, 2013 (Reg. No. 333-189739))
4.4	Certificate of Designations of Series B-1 and B-2 Preferred Stock (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed October 30, 2013)
4.5	Certificate of Designations of Series C Preferred Stock (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed April 2, 2014)
4.6	Certificate of Designations of Preferences, Rights and Limitations of Series D Preferred Stock (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed November 17, 2014)

Table of Contents

Exhibit No.	Description
4.7	Certificate of Designations of Preferences, Rights and Limitations of Series D-1 Preferred Stock (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed February 20, 2015)
4.8	Certificate of Designations, Preferences and Rights of the Series E Convertible Preferred Stock (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed on November 10, 2015)
10.1	Securities Purchase Agreement, dated January 17, 2006, between the Company and ITN Energy Systems, Inc. (incorporated by reference to Exhibit 10.1 to our Registration Statement on Form SB-2 filed on January 23, 2006 (Reg. No. 333-131216))CTR
10.2	Invention and Trade Secret Assignment Agreement, dated January 17, 2006, between the Company and ITN Energy Systems, Inc. (incorporated by reference to Exhibit 10.2 to our Registration Statement on Form SB-2 filed on January 23, 2006 (Reg. No. 333-131216))CTR
10.3	Patent Application Assignment Agreement, dated January 17, 2006, between the Company and ITN Energy Systems, Inc. (incorporated by reference to Exhibit 10.3 to our Registration Statement on Form SB-2 filed on January 23, 2006 (Reg. No. 333-131216))
10.4	License Agreement, dated January 17, 2006, between the Company and ITN Energy Systems, Inc. (incorporated by reference to Exhibit 10.4 to our Registration Statement on Form SB-2 filed on January 23, 2006 (Reg. No. 333-131216))CTR
10.5	Letter Agreement, dated November 23, 2005, among the Company, ITN Energy Systems, Inc. and the University of Delaware (incorporated by reference to Exhibit 10.16 to our Registration Statement on Form SB-2/A filed on May 26, 2006 (Reg. No. 333-131216))
10.6	License Agreement, dated November 21, 2006, between the Company and UD Technology Corporation (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on November 29, 2006)CTR
10.7	Novation Agreement, dated January 1, 2007, among the Company, ITN Energy Systems, Inc. and the United States Government (incorporated by reference to Exhibit 10.23 to our Annual Report on Form 10-KSB for the year ended December 31, 2006)
10.8	Construction Loan Agreement, dated February 8, 2008, between the Company and the Colorado Housing and Finance Authority (incorporated by reference to Exhibit 10.37 to our Annual Report on Form 10-K for the year ended December 31, 2007)
10.9	Promissory Note, dated February 8, 2008, issued to the Colorado Housing and Finance Authority (incorporated by reference to Exhibit 10.38 to our Annual Report on Form 10-K for the year ended December 31, 2007)
10.10	Loan Modification Agreement, dated January 29, 2009, between the Company and the Colorado Housing and Finance Authority (incorporated by reference to Exhibit 10.52 to our Annual Report on Form 10-K for the year ended December 31, 2008)
10.11†	Executive Employment Agreement, dated April 4, 2014, between the Company and Victor Lee (filed as Exhibit 10.1 to our Current Report on Form 8-K filed on April 9, 2014) †
10.12	Series E Securities Purchase Agreement, dated November 4, 2015, between the Company and Redwood Management, LLC Ltd (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed November 10, 2015)
10.13	Series E Registration Rights Agreement, dated November 4, 2015, between the Company and Redwood Management, LLC (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed November 10, 2015)

Table of Contents

Exhibit No.	Description
10.14	Equity Line Purchase Agreement dated November 10, 2015 (incorporated by reference to Exhibit 10.3 to our Current Report on Form 8-K filed November 10, 2015)
10.15	Equity Line Registration Rights Agreement dated November 10, 2015 (incorporated by reference to Exhibit 10.4 to our Current Report on Form 8-K filed November 10, 2015)
10.16	Series F Securities Purchase Agreement, dated January 19, 2016, between the Company and Redwood Management, LLC Ltd (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed January 20, 2016)
10.17	Right to Receive Common Stock dated April 29, 2016 (incorporated by reference to Exhibit 10.3 to our Current Report on Form 8-K filed May 2, 2016)
10.18	Right to Receive Common Stock dated April 29, 2016 (incorporated by reference to Exhibit 10.4 to our Current Report on Form 8-K filed May 2, 2016)
10.19	Series G Securities Purchase Agreement dated April 29, 2016 (incorporated by reference to Exhibit 10.5 to our Current Report on Form 8-K filed May 2, 2016
10.20	Series G Securities Purchase Agreement dated April 29, 2016 (incorporated by reference to Exhibit 10.6 to our Current Report on Form 8-K filed May 2, 2016
10.21	Series H Securities Purchase Agreement dated June 9, 2016 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed June 9, 2016)
10.22	Series H Registration Rights Agreement dated June 9, 2016 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed June 9, 2016)
10.23†	Seventh Amended and Restated 2005 Stock Option Plan (incorporated by reference to Annex C of our definitive proxy statement dated April 22, 2016)†
10.24†	Seventh Amended and Restated 2008 Restricted Stock Plan Stock Option Plan Plan (incorporated by reference to Annex B of our definitive proxy statement dated April 22, 2016)†
10.25	Series I Securities Purchase Agreement dated July 26, 2016 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed July 28, 2016)
10.26	Form of 10% Convertible Note (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed September 14, 2016)
10.27	Exchange Agreement dated September 13, 2016 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed September 14, 2016)
10.28	Series J Securities Purchase Agreement dated September 19, 2016 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed September 23, 2016)

Table of Contents

Exhibit No.	Description
10.29	Securities Purchase Agreement for Notes dated October 5, 2016 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed October 11, 2016)
10.30	Note due December 5, 2016 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed October 11, 2016)
10.31	Note due January 3, 2017 (incorporated by reference to Exhibit 10.3 to our Current Report on Form 8-K filed October 11, 2016)
10.32	Note due February 3, 2017 (incorporated by reference to Exhibit 10.4 to our Current Report on Form 8-K filed October 11, 2016)
10.33	Exchange Agreement dated October 5, 2016 (incorporated by reference to Exhibit 10.5 to our Current Report on Form 8-K filed October 11, 2016)
10.34	Series J-1 Securities Purchase Agreement dated October 14, 2016 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed October 20, 2016)
10.35	Note dated December 2, 2016 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed December 8, 2016)
10.36	Note dated December 6, 2016 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed December 8, 2016)
10.37	Note dated December 13, 2016 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed December 19, 2016)
10.38	Note dated December 30, 2016 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed January 6, 2017)
10.39	Note dated January 10, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed January 17, 2017)
10.40	$300,000 Note dated January 16, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed January 20, 2017)
10.41	$700,000 Note dated January 17, 2017 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed January 20, 2017)
10.42	Securities Purchase Agreement dated January 19, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed January 24, 2017)
10.43	Note dated February 7, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed February 9, 2017)

Table of Contents

Exhibit No.	Description
10.44	Series K Securities Purchase Agreement dated February 8, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed February 14, 2017)
10.45	Note dated February 13, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed February 17, 2017)
10.46	$400,000 Note dated February 27, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed March1, 2017)
10.47	Intellectual Property Disposal Agreement dated as of January 25, 2017 and effective February 23, 2017 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed March 1, 2017)
10.48	Note dated March 13, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed March 17, 2017)
10.49	Note dated March 24, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed March 29, 2017)
10.50	Note dated April 6, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed April 7, 2017)
10.51	Note dated April 21 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed April 24, 2017)
10.52	Forbearance and Settlement Agreement dated May 5, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed May 10, 2017)
10.53	Note dated May 8, 2017 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed May 10, 2017)
10.54	Form of Warrant (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed July 27, 2017)
10.55	Form of Warrant (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed August 11, 2017)
10.56	Securities Purchase Agreement dated September 8, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed September 14, 2017)
10.57	Note dated September 11, 2017 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed September 14, 2017)
10.58	Promissory Note Exchange Agreement dated September 13, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed September 20, 2017)

Table of Contents

Exhibit No.	Description
10.59	Note dated September 13, 2017 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed September 20, 2017)
10.60	Note dated October 31, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed November 8, 2017)
10.61	Note dated November 16, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed November 22, 2017)
10.62	Note Purchase and Exchange Agreement dated November 30, 2017*
10.63	Form of Secured Convertible Promissory Note - 36 month maturity*
10.64	Form of Secured Convertible Promissory Note - 12 month maturity*
10.65	Security Agreement dated November 30, 2017*
10.66	Series J Securities Exchange Agreement dated December 6, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed December 12, 2017)
10.67	Note dated December 6, 2017 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed December 12, 2017)
10.68	Warrant dated December 15, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed December 20, 2017)
10.69	Unsecured Promissory Note dated January 31, 2018 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed February 2, 2018)
16.1	Letter from Hein & Associates, LLP dated March 29, 2018*
23.1	Consent of Haynie & Company*
23.2	Consent of Hein & Associates LLP*
31.1	Chief Executive Officer Certification pursuant to section 302 of the Sarbanes-Oxley Act of 2002*

Table of Contents

Exhibit No.	Description
31.2	Chief Financial Officer Certification pursuant to section 302 of the Sarbanes-Oxley Act of 2002*
32.1	Chief Executive Officer Certification pursuant to section 906 of the Sarbanes-Oxley Act of 2002*
32.2	Chief Financial Officer Certification pursuant to section 906 of the Sarbanes-Oxley Act of 2002*
101.INS	XBRL Instance Document*
101.SCH	XBRL Taxonomy Extension Schema Document*
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document*
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document*
101.LAB	XBRL Taxonomy Extension Label Linkbase Document*
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document*

*	Filed herewith
CTR	Portions of this exhibit have been omitted pursuant to a request for confidential treatment.
†	Denotes management contract or compensatory plan or arrangement.

Item 16. Form 10-K Summary

None.

Table of Contents

ASCENT SOLAR TECHNOLOGIES, INC.
SIGNATURES
Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized on the 30th day of March, 2018.

ASCENT SOLAR TECHNOLOGIES, INC.

By: /S/ VICTOR LEE
Lee Kong Hian (aka Victor Lee)
President and Chief Executive Officer

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

Signature	Capacities	Date
/S/ VICTOR LEE Lee Kong Hian (aka Victor Lee)	President & Chief Executive Officer and a Director (principal executive officer, and principal financial officer and accounting officer)	March 29, 2018
/S/ AMIT KUMAR Amit Kumar, Ph.D.	Chairman of the Board of Directors	March 29, 2018
/S/ TOMAS MARSH G. Thomas Marsh	Director	March 29, 2018
/S/ KIM J. HUNTLEY Kim J. Huntley	Director	March 29, 2018

Table of Contents

Ascent Solar Technologies, Inc.
Index to Consolidated Financial Statements

Table of Contents

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM FOR 2016

To the Board of Directors
Ascent Solar Technologies, Inc.

We have audited the accompanying consolidated balance sheet of Ascent Solar Technologies, Inc. and subsidiaries as of December 31, 2016, and the related consolidated statements of operations, stockholders' equity (deficit) and cash flows for the year then ended. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. Our audit included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Ascent Solar Technologies, Inc. and subsidiaries as of December 31, 2016, and the results of their operations and their cash flows for the year then ended in conformity with U.S. generally accepted accounting principles.

The accompanying financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 4 to the financial statements, the Company has suffered recurring losses from operations and requires additional financing to fund operations through December 31, 2017. This raises substantial doubt about the Company's ability to continue as a going concern. Management's plans in regard to these matters also are described in Note 4. The financial statements do not include any adjustments that might result from the outcome of this uncertainty.

/s/ Hein & Associates LLP

Denver, Colorado
April 14, 2017

Table of Contents

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM FOR 2017

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

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheet of Ascent Solar Technologies, Inc. (the Company) as of December 31, 2017,and the related consolidated statements of operations, stockholders' deficit, and cash flows for the year ended December 31, 2017, and the related notes (collectively referred to as the financial statements). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2017 and , and the results of its operations and its cash flows for the year ended December 31, 2017, in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

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

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

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

Consideration of the Company's Ability to Continue as a Going Concern

The accompanying financial statements have been prepared assuming that the Company will continue as a going concern. As more fully described in Note 4 to the financial statements, the Company has recurring losses, negative working capital and negative cash flows from operations. These factors raise substantial doubt about the Company's ability to continue as a going concern. Management's plans in regard to these matters are also described in Note 4 to the financial statements. The financial statements do not include any adjustments that might result from the outcome of this uncertainty. If the Company is unable to obtain financing or increase sales, there could be a material adverse effect on the Company.

/s/ Haynie & Company

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

Littleton, CO

March 29, 2018

F- 2

Table of Contents

ASCENT SOLAR TECHNOLOGIES, INC.

CONSOLIDATED BALANCE SHEETS

	December 31, 2017	December 31, 2016
ASSETS (substantially pledged)		
Current Assets:		
Cash and cash equivalents	$89,618	$130,946
Trade receivables, net of allowance of $48,201 and $106,205, respectively	6,658	549,204
Inventories	1,037,854	2,569,816
Prepaid expenses and other current assets	494,425	983,796
Total current assets	1,628,555	4,233,762
Property, Plant and Equipment:	36,645,862	36,639,460
Less accumulated depreciation and amortization	(32,013,686)	(30,983,448)
	4,632,176	5,656,012
Other Assets:		
Patents, net of accumulated amortization of $430,071 and $279,143, respectively	1,470,796	1,647,505
Other non-current assets	49,813	77,562
	1,520,609	1,725,067
Total Assets	$7,781,340	$11,614,841
LIABILITIES AND STOCKHOLDERS' DEFICIT		
Current Liabilities:		
Accounts payable	$1,600,455	$4,902,471
Related party payables	202,827	214,903
Accrued expenses	1,623,748	1,469,684
Notes payable	1,570,231	—
Current portion of long-term debt	343,395	243,113
Current portion of secured promissory notes, net of discount of $1,934,304 and zero, respectively	253,590	1,010,000
Litigation settlement	—	339,481
Promissory notes, net of discount of $20,626 and zero, respectively	948,811	420,000
TFG promissory notes, net of discount of zero and $59,658, respectively	—	542,808
July 2016 convertible notes, net of discount of zero and $1,634,357, respectively	—	1,159,610
October 2016 convertible notes, net of discount of zero and $264,000, respectively	330,000	66,000
St. George convertible note, net of discount and cash payment premium of $673,241 and zero, respectively	1,032,592	—
BayBridge convertible note, net of discount of $565,000 and zero, respectively	—	—
Series E preferred stock, net of discount of zero and $63,640, respectively	—	56,360
Series F preferred stock	—	160,001
Series G preferred stock, net of discount of zero and $699,674, respectively	—	408,326
Series I exchange notes, net of discount of zero and $199,474, respectively	—	26,597
Embedded derivative liabilities	6,406,833	6,578,154
Make-whole dividend liability	—	500,176
Total current liabilities	14,312,482	18,097,684
Long-term debt, net of current portion	5,118,424	5,281,776
Secured promissory notes, net of current portion and discount of $1,684,267 and zero, respectively	685,066	—

Accrued Warranty Liability	57,703	176,457
Redeemable Preferred Stock:		
Series J preferred stock: 1,350 shares authorized; zero and 1,350 issued and outstanding as of December 31, 2017 and December 31, 2016, respectively	—	1,350,000
Series J-1 preferred stock: 1,000 shares authorized; zero and 700 issued and outstanding as of December 31, 2017 and December 31, 2016, respectively	—	700,000
Series K preferred stock: 20,000 and zero shares authorized as of December 31, 2017 and December 2016, respectively; 2,810 and zero issued and outstanding as of December 31, 2017 and December 31, 2016, respectively	2,810,000	—
Commitments and Contingencies	—	—
Stockholders' Deficit:		
Series A preferred stock, $.0001 par value; 750,000 shares authorized and issued; 60,756 and 125,044 shares outstanding as of December 31, 2017 and December 31, 2016, respectively ($761,864 and $1,500,528 Liquidation Preference)	6	13
Common stock, $0.0001 par value, 20,000,000,000 and 2,000,000,000 shares authorized as of December 31, 2017 and December 31, 2016, respectively; 9,606,597,777 and 554,223,320 shares issued and outstanding as of December 31, 2017 and December 31, 2016, respectively	960,660	55,422
Additional paid in capital	386,332,475	369,886,065
Accumulated deficit	(402,495,476)	(383,932,576)
Total stockholders' equity (deficit)	(15,202,335)	(13,991,076)
Total Liabilities and Stockholders' Equity	$ 7,781,340	$ 11,614,841

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

Table of Contents

ASCENT SOLAR TECHNOLOGIES, INC.

CONSOLIDATED STATEMENTS OF OPERATIONS

	For the Years Ended December 31,	
	2017	2016
Revenues	642,179	1,747,356
Costs and Expenses		
Cost of revenues (exclusive of depreciation shown below)	2,814,782	5,843,872
Research, development and manufacturing operations (exclusive of depreciation shown below)	4,820,536	6,627,249
Selling, general and administrative (exclusive of depreciation shown below)	5,598,004	10,304,779
Depreciation and amortization	1,193,535	3,600,007
Inventory impairment loss	363,377	—
Total Costs and Expenses	14,790,234	26,375,907
Loss from Operations	(14,148,055)	(24,628,551)
Other Income/(Expense)		
Other Income/(Expense), net	574,817	82,772
Interest Expense	(6,518,747)	(7,902,926)
Deemed interest expense on warrant liability	(345,774)	—
Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net	1,877,629	(6,402,077)
Total Other Income/(Expense)	(4,412,075)	(14,222,231)
Net Loss	$(18,560,130)	$(38,850,782)
Net Loss Per Share (Basic and diluted)	$0.003	$(0.418)
Weighted Average Common Shares Outstanding (Basic and diluted)	5,883,374,222	93,005,062

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

Table of Contents

ASCENT SOLAR TECHNOLOGIES, INC.

CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY (DEFICIT)

	Common Stock		Series A Preferred Stock		Additional Paid-In Capital	Accumulated Deficit	Total Stockholders' Equity (Deficit)
	Shares	Amount	Shares	Amount			
Balance, December 31, 2015	7,759,844	$777	212,390	$ 21	$347,659,690	$(345,081,794)	$2,578,694
Conversion of Convertible Notes into Common Shares	48,993	5			$58,818	—	58,823
Common Shares sold pursuant to the Committed Equity Line	525,454	52			1,056,095	—	1,056,147
Conversion of Right Shares into Common Shares	2,052,865	205			1,346,795	—	1,347,000
Interest and Dividend Expense paid with Common Stock	18,575,710	1,858			254,922	—	256,780
Issuance of Restricted Stock	183,230	18			(18)	—	—
Commitment Shares	107,000	11			(11)	—	—
Conversion of Series A Preferred Stock into Common Shares, plus make-whole	6,942,936	694	(46,849)	(4)	222,099	—	222,789
Conversion of Series E Preferred Stock into Common Shares	41,895,161	4,189			3,414,032	—	3,418,221
Conversion of Series F Preferred Stock into Common Shares	113,059,991	11,306			9,920,148	—	9,931,454
Conversion of Series G Preferred Stock into Common Shares	234,409,413	23,441			1,472,955	—	1,496,396
Conversion of Series I Preferred Stock into Common Shares	6,988,353	699			2,532,718	—	2,533,417
Conversion of Series I Convertible Notes into Common Shares	14,816,862	1,481			159,345	—	160,826
Conversion of July 2016 Convertible Notes into Common Shares	64,000,000	6,400			245,280	—	251,680
Conversion of October 2016 Convertible Notes into Common Shares, plus	42,857,508	4,286	(40,497)	(4)	173,288	—	177,570

make-whole							
Stock based compensation					888,348		888,348
Beneficial Conversion Feature related to Series G and Series I Preferred Stock					481,561		481,561
Net Loss						(38,850,782)	(38,850,782)
Balance, December 31, 2016	554,223,320	$55,422	125,044	$ 13	$369,886,065	$(383,932,576)	$(13,991,076)

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

Table of Contents

ASCENT SOLAR TECHNOLOGIES, INC.

CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY (DEFICIT)

	Common Stock		Series A Preferred Stock		Additional Paid-In	Accumulated	Total Stockholders'
	Shares	Amount	Shares	Amount	Capital	Deficit	Equity
Balance, December 31, 2016	554,223,320	$55,422	125,044	$ 13	$369,886,065	$(383,932,576)	(13,991,076)
Interest and Dividend Expense paid with Common Stock	332,006,907	33,201			213,383		246,584
Issuance of Restricted Stock	40,000	4			(4)		—
Commitment Shares	37,500,000	3,750			60,000		63,750
Conversion of Series A Preferred Stock into Common Shares, plus make-whole	131,088,740	13,109	(64,288)	(7)	244,050		257,152
Conversion of Series E Preferred Stock into Common Shares	247,371,677	24,737			95,263		120,000
Conversion of Series F Preferred Stock into Common Shares	189,780,458	18,978			108,022		127,000
Conversion of Series G Preferred Stock into Common Shares	1,529,316,391	152,932			745,068		898,000
Conversion of Series I Convertible Notes into Common Shares	419,719,614	41,972			184,099		226,071
Conversion of Series J Preferred Stock into Common Shares	365,646,259	36,565			238,435		275,000
Conversion of Series J-1 Preferred Stock into Common Shares	466,666,667	46,667			653,333		700,000
Conversion of Series K Preferred Stock into Common Shares	1,550,000,000	155,000			6,045,000		6,200,000
Conversion of July 2016 Convertible Notes into Common Shares	2,808,248,547	280,825			1,419,142		1,699,967
Conversion of TFG note into Common Shares	333,333,333	33,333			511,348		544,681
Conversion of BayBridge Note into Common Shares	473,404,630	47,340			330,659		377,999
	168,251,234	16,825			146,683		163,508

Conversion of Global Ichiban Note into Common Shares							
Loss on Extinguishment of Liabilities					4,481,939		4,481,939
Induced Conversion Costs					500,948		500,948
Warrant Expense					345,774		345,774
Stock based compensation					123,268		123,268
Prior period adjustment - subsidiary						(2,770)	(2,770)
Net Loss						(18,560,130)	(18,560,130)
Balance, December 31, 2017	9,606,597,777	$960,660	60,756	$ 6	$386,332,475	$(402,495,476)	$(15,202,335)

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

Table of Contents

ASCENT SOLAR TECHNOLOGIES, INC.

CONSOLIDATED STATEMENTS OF CASH FLOWS

	For the Years Ended December 31,	
	2017	2016
Operating Activities:		
Net loss	$(18,560,130)	$(38,850,782)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	1,197,285	3,600,007
Stock based compensation	123,268	888,348
Realized loss (gain) on sale of assets	(1,210,331)	(82,772)
Amortization of financing costs	76,351	137,111
Non-cash interest expense	643,263	948,901
Amortization of debt discount	4,427,086	6,214,060
Bad debt expense	514	122,416
Accrued litigation settlement	(339,481)	(541,279)
Warrant expense	345,774	—
Impairment of inventory	363,377	—
Warranty reserve	(118,754)	(87,543)
Change in fair value of derivatives and loss on extinguishment of liabilities, net	(1,877,629)	6,402,077
Induced conversion expense	635,514	—
Changes in operating assets and liabilities:		
Accounts receivable	569,632	1,321,265
Inventories	1,168,585	1,702,564
Prepaid expenses and other current assets	389,910	379,374
Accounts payable	(592,403)	1,492,053
Related party payable	(12,076)	
Accrued expenses	172,316	(501,284)
Net cash used in operating activities	(12,597,929)	(16,855,484)
Investing Activities:		
Purchase of property, plant and equipment	(6,402)	(51,724)
Proceeds from sale of assets	150,000	82,772
Patent activity costs	(62,652)	(189,455)
Net cash used in investing activities	80,946	(158,407)
Financing Activities:		
Proceeds from debt	5,542,500	1,930,000
Repayment of debt	(2,056,845)	(266,027)
Payment of debt financing costs	(20,000)	(81,500)
Proceeds from Committed Equity Line	—	1,056,147
Proceeds from issuance of stock and warrants	9,010,000	14,180,000
Net cash provided by financing activities	12,475,655	16,818,620
Net change in cash and cash equivalents	(41,328)	(195,271)
Cash and cash equivalents at beginning of period	130,946	326,217
Cash and cash equivalents at end of period	$89,618	$130,946
Supplemental Cash Flow Information:		
Cash paid for interest	$1,221,843	$417,876
Cash paid for income taxes	$—	$—
Non-Cash Transactions:		

Non-cash conversions of preferred stock and convertible notes to equity	$11,835,962	$10,617,764
Non-cash conversions of preferred stock to notes payable	$1,075,000	$—
Make-whole provision on convertible preferred stock	$257,152	$161,988
Non-cash financing costs	$2,500	$—
Debt converted to accounts payable	$55,067	$—
Accounts payable converted to notes payable	$1,587,760	$—
Accounts payable forgiven related to sale of EnerPlex	$1,031,726	$—
Interest converted to principal	$431,195	$—
Common shares issued for commitment fee	$63,750	$—
Initial embedded derivative liabilities	$5,878,345	$5,444,362

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

Table of Contents
ASCENT SOLAR TECHNOLOGIES, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

NOTE 1. ORGANIZATION

Ascent Solar Technologies, Inc. (“Ascent”) was incorporated on October 18, 2005 from the separation by ITN Energy Systems, Inc. (“ITN”) of its Advanced Photovoltaic Division and all of that division’s key personnel and core technologies. ITN, a private company incorporated in 1994, is an incubator dedicated to the development of thin film, photovoltaic (“PV”), battery, fuel cell and nano technologies. Through its work on research and development contracts for private and governmental entities, ITN developed proprietary processing and manufacturing know how applicable to PV products generally, and to Copper-Indium-Gallium-diSelenide (“CIGS”) PV products in particular. ITN formed Ascent to commercialize its investment in CIGS PV technologies. In January 2006, in exchange for 102,800 shares of common stock of Ascent, ITN assigned to Ascent certain CIGS PV technologies and trade secrets and granted to Ascent a perpetual, exclusive, royalty free worldwide license to use, in connection with the manufacture, development, marketing and commercialization of CIGS PV to produce solar power, certain of ITN’s existing and future proprietary and control technologies that, although non-specific to CIGS PV, Ascent believes will be useful in its production of PV modules for its target markets. Upon receipt of the necessary government approvals and pursuant to novation in early 2007, ITN assigned government funded research and development contracts to Ascent and also transferred the key personnel working on the contracts to Ascent.

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

Reverse Stock Split

On May 26, 2016, the Company, a Delaware corporation, filed a Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Company (the “Certificate of Amendment”) with the Secretary of State of the State of Delaware to effect a reverse stock split of the Company’s common stock, par value $0.0001 per share, at a ratio of one-for-twenty (the “Reverse Stock Split”). The Certificate of Amendment did not change the number of authorized shares, or the par value, of the Company’s common stock. The Certificate of Amendment provides that every twenty shares of the Company’s issued and outstanding common stock were automatically combined into one issued and outstanding share of the Company’s common stock. All shares and per share amounts in the consolidated financial statements and accompanying notes have been retroactively adjusted to give effect to the Reverse Stock Split.

NOTE 2. BASIS OF PRESENTATION

The accompanying consolidated financial statements have been derived from the accounting records of Ascent Solar Technologies, Inc., Ascent Solar (Asia) Pte. Ltd., and Ascent Solar (Shenzhen) Co., Ltd. (collectively, "the Company") as of December 31, 2017 and December 31, 2016, and the results of operations for the years ended December 31, 2017 and 2016. Ascent Solar (Shenzhen) Co., Ltd. is wholly owned by Ascent Solar (Asia) Pte. Ltd., which is wholly owned by Ascent Solar Technologies, Inc. All significant inter-company balances and transactions have been eliminated in the accompanying consolidated financial statements.

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period.

Actual results could differ from those estimates.

Table of Contents
ASCENT SOLAR TECHNOLOGIES, INC.

NOTE 3. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

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

Foreign Currencies: Bank account balances held in foreign currencies are translated to U.S. dollars utilizing the period end exchange rate. Gains or losses incurred in connection with the Company’s accounts held in foreign currency were not material for the years ended December 31, 2017 and 2016 and were recorded in “Other Income/(Expense)” in the Consolidated Statements of Operations.

Receivables and Allowance for Doubtful Accounts: Trade accounts receivable are recorded at the invoiced amount as the result of transactions with customers. The Company maintains allowances for doubtful accounts for estimated losses resulting from the inability of its customers to make required payments. The Company estimates the collectability of accounts receivable using analysis of historical bad debts, customer credit-worthiness and current economic trends. Reserves are established on an account-by-account basis. Account balances are written off against the allowance in the period in which the Company determines that is it probable that the receivable will not be recovered. As of December 31, 2017 and 2016, the Company had an allowance for doubtful accounts of $48,201 and $106,205, respectively.

Inventories: All inventories are stated at the lower of cost or net realizable value, with cost determined using the weighted average method. Inventory balances are frequently evaluated to ensure they do not exceed net realizable value. The computation for net realizable value takes into account many factors, including expected demand, product life cycle and development plans, module efficiency, quality issues, obsolescence and others. Management's judgment is required to determine reserves for obsolete or excess inventory. As of December 31, 2017 and 2016, the Company had inventory reserve balances of $562,140 and $736,663, respectively. If actual demand and market conditions are less favorable than those estimated by management, additional inventory write downs may be required.

Due to the sale of the EnerPlex brand and the re-purposing of our work-in-process inventory, we are unable to estimate the recoverability of all of our work-in process inventory values, resulting in a lower-cost-to-market analysis and reserve for impairment. An expense of $363,377 was recorded to inventory impairment costs for the year ended December 31, 2017. There were no lower of cost or market adjustments during the year ended December 31, 2016.

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

	Useful Lives in Years
Buildings	40
Manufacturing machinery and equipment	5 - 10
Furniture, fixtures, computer hardware/software	3 - 7
Leasehold improvements	life of lease

Patents: At such time as the Company is awarded patents, patent costs are amortized on a straight-line basis over the legal life on the patents, or over their estimated useful lives, whichever is shorter. As of December 31, 2017 and 2016, the Company had $1,470,796 and $1,647,505 of net patent costs, respectively. Of these amounts