

Edgar Filing: Ascent Solar Technologies, Inc. - Form 10-K

Ascent Solar Technologies, Inc.  
Form 10-K  
March 11, 2016  
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UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549

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FORM 10-K

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(Mark One)

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

For the fiscal year ended December 31, 2015

or

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

For the Transition Period from \_\_\_\_\_ to \_\_\_\_\_  
Commission File No. 001-32919

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

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Delaware 20-3672603  
(State or other jurisdiction of (I.R.S. Employer  
incorporation or organization) 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	OTCQB Venture Market

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

None

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

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

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

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

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

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

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

As of June 30, 2015, 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 \$17.1 million based upon the last reported sale price of the registrant’s common stock on that date as reported by NASDAQ.

As of March 9, 2016, there were 216,406,974 shares of our common stock issued and outstanding.

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FORWARD-LOOKING STATEMENTS

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

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

- Our limited operating history and lack of profitability;
- Our ability to successfully design, manufacture and sell our EnerPlex™ line of consumer products;
- 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 strategic alliance with TFG Radiant results in the design, manufacture and sale of sufficient products to achieve profitability;
- 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 OTCQB Venture Market;
- The commencement, or outcome, of legal proceedings against us, or by us, including ongoing litigation proceedings;
- Changes in our business plan or corporate strategies;
- The extent to which we are able to manage the growth of our operations effectively, both domestically and abroad, whether directly owned or indirectly through licenses;
- The supply, availability and price of equipment, components and raw materials, including the elements needed to produce our photovoltaic modules;
- Our ability to expand and protect the intellectual property portfolio that relates to our consumer electronics, photovoltaic modules and processes;
- 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.

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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 and then laser patterns 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 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 satellites and near earth orbiting vehicles. Currently, we are producing consumer oriented products with a focus on charging devices powered by or enhanced by our solar modules under the EnerPlex consumer brand. Products in these markets are priced based on the overall product 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.

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.

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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.

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](http://www.amazon.com), [www.walmart.com](http://www.walmart.com), [www.brookstone.com](http://www.brookstone.com), [www.newegg.com](http://www.newegg.com) as well as many others including our own e-commerce platform at [www.goenerplex.com](http://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 are carried in all of Fry's 34 superstores across 9 states. In 2015 EnerPlex expanded its relationship with The Cellular Connection ("TCC") to include over 450 Verizon Wireless Premium Retail Stores; in addition to gaining retail placement in Cabela's and The Sports Authority's brick-and-mortar stores, each a flagship retailer in their respective channels. We have also expanded our products placement globally to include over 170 Maplin Electronics stores in the UK as well as over 25 superstores with Anaconda in Australia. As a result of these retail partnerships and others, EnerPlex retail placement had surpassed over 1,000 stores globally by the end of 2015.

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 and 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 when compared to the competition. 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 the first quarter of 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. During the second quarter EnerPlex launched the Generatr S100 and select other products exclusively with EVINE, and in the third quarter the Generatr 1200 launched exclusively with EVINE for a limited period.



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During the second quarter of 2015 EnerPlex launched its products into two world recognized retailers; including over 100 The Sports Authority stores nationwide, in addition to launching in select Cabela's, "The World's Foremost Outfitter", stores and via Cabela's online catalog. Internationally, EnerPlex products became available in the United Kingdom via the brand's launch with 172 Maplin's stores throughout the country. During the fourth quarter of 2015, EnerPlex launched with GovX, the premier online shopping destination for Military, Law Enforcement and Government agencies.

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 less or 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 1, 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, the joint venture partner with Radiant Group in TFG Radiant.

The addition of TFG Radiant as a major shareholder in August 2011 has significantly improved our capabilities on a number of fronts. TFG Radiant's domicile in Shenzhen, China provides us access to high quality, low cost contract manufacturing in Asia through the expansion of TFG Radiant's existing relationships developed through many years of successful operation in China. Integrating these suppliers into our supply chain enables us to bring our products to market faster. TFG Radiant also provides a global product perspective that significantly improves the product design activities of our Thornton, Colorado designers as they collaborate with designers in Asia. We continue to integrate and improve the design-to-manufacture process where we manufacture modules in our US plant, ship them to Asia for completion into finished goods at low cost and then ship products to all markets we will serve.

We plan to continue the development of our PV technology in order 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

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

### Competitive Strengths

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

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

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

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

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

Our strategic relationship with TFG Radiant provides us with direct access to a potentially large customer base in the East Asia market, sophisticated low cost contract manufacturing suppliers and consumer product design capability. TFG Radiant is a joint venture between Radiant Group, a Chinese conglomerate in construction and real estate, and Tertius Financial Group, a private investment firm based in Singapore. The combined entity, with more than 3,000 personnel, operates various businesses across China, Indonesia, Singapore and Malaysia, including metal roofing and facades, import/export trading, real estate investment, project management and consultation, new energy development, manufacturing and distribution and gold mining.

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.

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### 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, military and transportation applications.

The EnerPlex consumer market is divided into three verticals: Mobile, Outdoor and Emergency Power. Each consumer segment within the verticals has a set of differentiated power needs; depending on multiple factors such as: time away from the outlet, devices used etc. Unlike competitors in the portable power industry, EnerPlex succeeds in supplying power solutions across all three verticals, a core differentiator.

Our marketing efforts in 2016 will be primarily focused on expanding consumer awareness of our EnerPlex brand and driving revenue through the retail and distribution partnerships built over the last three years. The EnerPlex™ brand presently includes solar and battery integrated smartphone cases (EnerPlex Surf™), portable outdoor foldable solar chargers (EnerPlex Kickr™), ruggedized heavy-duty solar charges (EnerPlex Commandr™), solar integrated backpacks (EnerPlex Packr™), portable rechargeable power banks (EnerPlex Jumpr™), portable heavy-duty batteries (EnerPlex Generatr™), and complimentary accessories such as travel adapters, bluetooth speakers and other power accessories. These products serve a variety of consumers requiring clean and practical, range extending power solutions for electronic devices either indoors or out. Target consumers include frequent travelers, students, business professionals and those spending extended time outdoors away from the power grid (hunters, campers, park rangers, miners, construction workers, etc.).

Our EnerPlex™ sales strategy includes direct sales relationships, large retailers, as well as through distributors who serve retailers. We are establishing key distributor relationships throughout the world, by territory, typically on a nonexclusive basis. In 2016, we plan to continue our expansion of distribution channels both in the U.S. and internationally. In early 2013, we established our e-commerce presence through [www.goenerplex.com](http://www.goenerplex.com), where our retail customers can purchase our EnerPlex™ products and have them delivered directly from our warehouse. Our products are also available on a variety of third party e-commerce sites including [www.amazon.com](http://www.amazon.com), [www.bestbuy.com](http://www.bestbuy.com), [www.walmart.com](http://www.walmart.com), [www.newegg.com](http://www.newegg.com), [www.frys.com](http://www.frys.com), [www.cabelas.com](http://www.cabelas.com) and several others. In the high value specialty PV markets segment, our modules can provide lightweight, high performance, durable power solutions for commercial transportation, automotive, aerospace, military and light-weight off grid structures. In 2013, we were chosen to partner with Volvo for their Pure Tension Pavilion project where our revolutionary, flexible and lightweight CIGS solar modules were selected for integration into the Pavilion's tensioned mesh membrane structure. The Volvo's Solar Pavilion was ultimately awarded the 25 Best Inventions of the Year 2013 by <http://techland.time.com>.

The integration of space, near space, and aeronautic applications with ultra-lightweight and flexible solar modules is an additional large market opportunity for the Company. Customers in this market have historically required a high level of durability 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 (SFUAS) and Bye Aerospace, we announced the successful first flight of a production version of the Silent Falcon™ Unmanned Aircraft Systems (UAS) powered by Ascent's ultra-lightweight, flexible PV modules. In July 2014, our ultra-lightweight, flexible PV modules were selected by Vanguard Space Technologies (Vanguard) for their NASA Small Business Innovative Research (SBIR) 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 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 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

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power in remote areas, regardless of local infrastructure. We will continue to reach the military market primarily through partnerships with top systems providers and the completion of our product listing on the Government Services Administration (GSA) price schedule. 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.

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. From 2011 to 2013, the PV industry landscape changed significantly. According to NPD Solarbuzz, Yingli Green Energy maintained leading module supplier ranking in 2013, with Trina Solar competing strongly for the second position. Seven of the top ten producers, and four of the top five, were crystalline silicon manufacturers based in China. Companies currently developing or selling CIGS-based PV modules include Avancis GmbH & Co. KG, Flisom AG, NuvoSun, Inc., Solibro GmbH, Solarion AG, Solar Frontier and Hanergy Holding Group. A number of manufacturers that traditionally have manufactured and sold c-Si-based modules have entered, or in the future may enter, the market for thin film PV modules, and potentially, CIGS-based PV modules. These efforts have been initiated both through internal development and through acquisition of companies, or the purchase of turnkey solutions offered by PV equipment providers.

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 2012, the five largest PV manufacturers included: Yingli Green Energy Holding Co. Ltd. (China), First Solar (US), Suntech Power Holdings Co., Ltd. (China), Trina Solar (China) and Canadian Solar (Canada). In 2012, crystalline silicon PV technology represented approximately 90% of global market share, a slight increase over 2011 at 88%, with the balance captured by thin film. In 2013, the five largest PV module suppliers included: Yingli Green Energy Holding Co. Ltd. (China), Trina Solar (China), Sharp Solar (Japan), Canadian Solar (Canada), and Jinko Solar (China). According to the Fraunhofer Institute Photovoltaics Report, Si-wafer based PV technology accounted for about 90 % of the total production in 2013. The remainder of the production is captured by thin film, with CdTe production accounting for 54% of the thin film production and CIGS and a-Si splitting the remainder with 23% each.

We believe that our modules offer unique advantages. Their flexibility and high power density enable use on weight-sensitive applications, such as portable power, conformal aircraft surfaces, and space applications that are unsuitable for glass-based modules. Innovative product design and customer focused development both 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. smartphone solar chargers) 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 Global Solar Energy (Sunling brand), PowerFilm, Trony and more recently Alta Devices. Competitors in the phone case with supplemental charging market include Mophie, Tylt, MyCharge and Powerskin. Competitors in the power bank market include Mophie, Energizer, MyCharge and Tenenergy. 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.

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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 2015 and 2014 we incurred approximately \$6.7 million and \$18.8 million respectively, in research and development costs, which include research and development incurred in relation to our government contracts, as well as manufacturing costs incurred while developing our product lines and manufacturing process.

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

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

Issued Patents and Registrations

1. US Patent No. 7,271,333 entitled "Apparatus and Method of Production of Thin-Film Photovoltaic Modules" (issued September 18, 2007)
2. US Patent No. 7,812,247 entitled "Flexible Photovoltaic Array With Integrated Wiring And Control Circuitry, And Associated Methods" (issued October 12, 2010; (co-owned with PermaCity Corporation)
3. US Patent No. 8,021,905 entitled "Machine and Process for Sequential Multi-Sublayer Deposition of Copper Indium Gallium Diselenide Compound Semiconductors" (issued September 20, 2011)
4. US Patent No. 8,124,870 entitled "Systems and Processes for Bifacial Collection and Tandem Junctions Using a Thin film Photovoltaic Device" (issued February 28, 2012)
5. US Patent No. 8,207,442 entitled "Reinforcing Structures for Thin film Photovoltaic Device Substrates, and Associated Methods" (issued June 26, 2012)
6. ECD No. 002180353-0001 entitled "Mobile Electronic Device Case" (issued February 12, 2013)
7. ECD No. 002180353-0002 entitled "Mobile Electronic Device Case" (issued February 12, 2013)
8. ECD No. 002180353-0003 entitled "Mobile Electronic Device Case" (issued February 12, 2013)
9. US Patent No. 8,426,725 entitled "Apparatus and Method for Hybrid Photovoltaic Device Having Multiple, Stacked, Heterogeneous, Semiconductor Junctions" (issued April 23, 2013)
10. 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)
11. CN Patent ZL201330040305.1 entitled "Mobile Electronic Device Case" (issued January 1, 2014)
12. US Patent No. D697,502 entitled "Mobile Electronic Device Case" (issued January 14, 2014)
13. KR Patent No. 30-0727960 entitled "Mobile Electronic Device Case" (issued January 28, 2014)
14. 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)
15. US Patent No. 8,716,591 entitled "Array of Monolithically Integrated Thin Film PhotoVoltaic Cells and Associated Methods" (issued May 6, 2014)
16. ECD No. 001429773-0001 entitled "Mobile Handheld Electronic Device Case" (issued February 6, 2015)
17. ECD No. 001429773-0002 entitled "Mobile Handheld Electronic Device Case" (issued February 6, 2015)
18. ECD No. 001429773-0003 entitled "Mobile Handheld Electronic Device Case" (issued February 6, 2015)

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19. ECD No. 001429773-0004 entitled "Mobile Handheld Electronic Device Case" (issued February 6, 2015)
20. ECD No. 001429773-0005 entitled "Mobile Handheld Electronic Device Case" (issued February 6, 2015)
21. ECD No. 001429773-0006 entitled "Mobile Handheld Electronic Device Case" (issued February 6, 2015)
22. ECD No. 001429773-0007 entitled "Mobile Handheld Electronic Device Case" (issued February 6, 2015)
23. ECD No. 002732123-0001 entitled "Portable Battery Charging Device" (issued July 7, 2015)
24. ECD No. 002732123-0002 entitled "Portable Battery Charging Device" (issued July 7, 2015)
25. ECD No. 002732123-0003 entitled "Portable Battery Charging Device" (issued July 7, 2015)
26. ECD No. 002735159-0001 entitled "Portable Energy Storage And Distribution Device" (issued July 10, 2015)
27. ECD No. 002735159-0002 entitled "Portable Energy Storage And Distribution Device" (issued July 10, 2015)
28. ECD No. 002735159-0003 entitled "Portable Energy Storage And Distribution Device" (issued July 10, 2015)
29. ECD No. 002735159-0004 entitled "Portable Energy Storage And Distribution Device" (issued July 10, 2015)
30. US Patent 9,147,783 entitled "Apparatus and Method for Hybrid Photovoltaic Device Having Multiple, Stacked, Heterogeneous, Semiconductor Junctions" (issued September 29, 2015)
31. CN Patent ZL201390000979.1 entitled "System For Housing And Powering A Battery-Operated Device And Associated Methods" (issued October 7, 2015)
32. KR Patent 10-1561453 entitled "Apparatus and Method for Hybrid Photovoltaic Device Having Multiple, Stacked, Heterogeneous, Semiconductor Junctions" (issued October 13, 2015)
33. US Patent No. 9,209,322 entitled "Multilayer Thin-Film Back Contact System For Flexible Photovoltaic Devices On Polymer Substrates" (issued December 8, 2015)
34. US Patent No. 9,219,179 entitled "Multilayer Thin-Film Back Contact System For Flexible Photovoltaic Devices On Polymer Substrates" (issued December 22, 2015)

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)

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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)

In addition, we have nineteen (19) unpublished pending patent applications in related areas, ten (10) of which were filed in 2015.

In order to protect the branding of the EnerPlex™ mark and design, as well as various slogans and product family names, we have 134 TM registrations and 64 pending TM applications worldwide (many of which have been published) for the following:

1. EnerPlex (mark and design with grid detail)
2. EnerPlex (mark with design without grid detail)
3. EnerPlex Commandr
4. EnerPlex Generatr
5. EnerPlex Jump

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6. EnerPlex Kickr
7. EnerPlex Packr
8. EnerPlex Surfr
9. Corpak
10. MilPak
11. Wavesol
12. "Always in Charge"
13. "Life is Limitless"
14. "Transforming Everyday Life"

Ascent Solar has trademark applications and registrations in the United States and worldwide including (but not limited to) Australia, Canada, China, European Union, Hong Kong, Indonesia, India, Japan, South Korea, Macao, Mexico, Malaysia, OAPI, Philippines, Pakistan, Singapore, South Africa Thailand, Turkey, Taiwan, and Vietnam. Depending on country laws, the marks listed above may include the <sup>TM</sup> 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.

Our consumer products are delivered to us as finished goods from a variety of contract manufacturers in Asia. For those products that include PV modules we provide the modules to the contract manufacturers who then return the modules integrated into the finished product.

Employees

As of December 31, 2015, we had 119 full time employees.

Company History

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

Corporate Information

We were incorporated under the laws of Delaware in October 2005. Our principal business office is located at 12300 Grant Street, Thornton, Colorado 80241, and our telephone number is (720) 872-5000. Our e-commerce website address is [www.goenerplex.com](http://www.goenerplex.com). Our website address is [www.ascentsolar.com](http://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.



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### 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](http://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 consumer oriented 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;
- Our strategic alliance with TFG Radiant results in the design, manufacture and sale of sufficient products to achieve profitability;
- We raise sufficient capital to enable us to reach a level of sales sufficient to achieve profitability on terms favorable to us;
- We are able to design, manufacture, market, distribute and sell our newly introduced line of consumer oriented 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 OTCQB Venture 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.



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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 applicable to common stockholders of \$45.8 million for the year ended December 31, 2015 and reported an accumulated deficit of \$345.1 million as of December 31, 2015. 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 consumer oriented 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 EnerPlex line of consumer oriented products exposes us to many new risks and uncertainties.

Following the appointment of our new President and CEO in February 2012, we repositioned our business model with an immediate focus into developing downstream consumer products. In 2012, we launched our EnerPlex brand line of consumer products, and introduced the first product under the EnerPlex brand with a solar assisted mobile phone charger incorporating our CIGS PV thin film technology. This new line of consumer oriented products exposes us to many risks and uncertainties that are new to our business.

We have limited experience in the design, manufacture, marketing, distribution and sale of consumer oriented products. Our ability to be successful with our line of consumer oriented products will depend on a number of factors, including whether:

• We can achieve and maintain customer acceptance of our new consumer oriented products;

• We can rapidly develop and successfully introduce large numbers of new consumer oriented products in response to changing consumer preferences, the introduction of new consumer electronics products (such as new mobile phone models) that our EnerPlex™ products are designed to extend their battery life, and the introduction of new products by competing manufacturers;

• We can maintain an adequate level of product quality over multiple consumer oriented products which must be designed, manufactured and introduced rapidly to keep pace with changing consumer preferences and competitive factors;

• We can successfully manage our third party contract manufacturers located outside the U.S. on whom we are heavily dependent for the production of our consumer oriented products;

• We can successfully distribute our consumer oriented products through distributors, wholesalers, internet retailers and traditional retailers (many of whom distribute products from competing manufacturers) on whom we are heavily dependent; and

• We can successfully manage the substantial inventory and other asset risks associated with the manufacture and sale of consumer electronic products, given the rapid and unpredictable pace of product obsolescence in such consumer markets.

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

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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 and at contract manufacturers in Asia. Successful operations will require substantial engineering and manufacturing resources and are subject to significant risks, including risks of cost overruns, delays and other risks, such as geopolitical unrest that may cause us not to be able to successfully operate in other countries. Furthermore, we may never be able to operate our production processes in high volume or at the volumes projected, make planned process and equipment improvements, attain projected manufacturing yields or desired annual capacity, obtain timely delivery of components, or hire and train the additional employees and management needed to scale our operations. Failure to meet these objectives on time and within our planned budget could materially and adversely affect our business, results of operations and financial condition. We may be unable to manage the expansion of our operations and strategic alliances effectively.

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

We depend on a limited number of third party suppliers for key raw materials, and their failure to perform could cause manufacturing delays and impair our ability to deliver PV modules to customers in the required quality and quantity and at a price that is profitable to us.

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

Our continuing operations will require additional capital which we may not be able to obtain on favorable terms, if at all or without dilution to our stockholders.

Since inception, we have incurred significant losses. We expect to continue to incur net losses in the near term. For the year ended December 31, 2015, our cash used in operations was \$22.1 million. At December 31, 2015, we had cash and equivalents of \$326,000.

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 consumer products strategy. Additional projected product revenues are not anticipated to result in a positive cash flow position for the year 2016 overall. The Company will need to raise additional capital in order to continue our current

level of operations throughout 2016.

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

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through debt financing, which may involve restrictive covenants, our ability to operate our business may be restricted. If adequate funds are not available or are not available on acceptable terms, if and when needed, our ability to fund our operations, take advantage of unanticipated opportunities, develop or enhance our products, expand capacity or otherwise respond to competitive pressures could be significantly limited, and our business, results of operations and financial condition could be materially and adversely affected.

In addition, the terms of a loan we obtained from the Colorado Housing and Finance Authority (“CHFA”) in connection with our purchase and improvement of our Thornton, Colorado facility contain covenants that limit our ability, without the consent of CHFA, to create or incur additional indebtedness (other than obligations created or incurred in the ordinary course of business such as working capital financing); merge or consolidate with any other entity; or make loans or advances to our officers, shareholders, directors or employees. The presence of these covenants gives CHFA the ability to bar us from engaging in certain transactions in the future that we may determine are necessary or advisable to meet our business objectives, including debt offerings and acquisitions of or by other companies. If CHFA were to withhold its written consent under these or other circumstances, we could be forced to prepay such loans at a premium, which could adversely affect our business, results of operations and financial condition. Our products may never gain sufficient market acceptance, in which case we would be unable to sell our products or achieve profitability.

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

We are targeting emerging markets for a significant portion of our planned product sales. These markets are new and may not develop as rapidly as we expect, or may not develop at all.

Our target markets include consumer electronics, portable power, defense, transportation, space and near space, BAPV and BIPV 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 consumer electronics, 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 consumer electronics, 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, retailers and value added resellers as well as direct to consumer kiosks 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.

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

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

Problems with product quality or performance may cause us to incur warranty expenses, damage our market reputation and prevent us from maintaining or increasing our market share.

If our products fail to perform as expected while under warranty, or if we are unable to support the warranties, sales of our products may be adversely affected or our costs may increase, and our business, results of operations and financial condition could be materially and adversely affected.

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

As of March 9, 2016, TFG Radiant beneficially owned approximately 3% of our common stock. As a result of its large holding of our shares, TFG Radiant may have the ability to prevent any transaction that requires the approval of stockholders regardless of whether other stockholders believe any such transaction is in their own best interests, with the exception of certain agreements TFG Radiant has made pursuant to the Amended and Restated Stockholders Agreement between us and TFG Radiant. TFG Radiant also has certain registration rights that could impact shareholders. Additionally, TFG Radiant currently holds two seats on our Board of Directors, which affords TFG Radiant greater control and influence over matters affecting our business.

On February 1, 2012, Mr. Victor Lee was appointed by our Board as our President and Chief Executive Officer. Mr. Lee is the managing director of Tertius Financial Group Pte Ltd, the joint venture partner with Radiant Group in TFG Radiant.

TFG Radiant may from time to time acquire and hold interests in businesses that compete directly or indirectly with us. TFG Radiant 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 TFG Radiant and our interests in selling to those customers could be divergent from TFG Radiant's competitive interests. So long as TFG Radiant continues to own a significant amount of the outstanding shares of our common stock and Mr. Lee is President and Chief Executive Officer, TFG Radiant 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.

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Our raw materials include high temperature plastics and various metals. Significant increases in the costs of these raw materials may impact our ability to compete in our target markets at a price sufficient to produce a profit.

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

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

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

If third parties claim we are infringing or misappropriating their intellectual property rights, we could be prohibited from selling our PV products, be required to obtain licenses from third parties or be forced to develop non-infringing alternatives, and we could be subject to substantial monetary damages and injunctive relief.

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



not have sufficient rights to grant us the license(s) purportedly granted. Also, some of our licenses may restrict or limit our ability to grant sub-licenses and/or assign rights under the licenses to third parties, which may limit our ability to pursue business opportunities.

Our future success depends on retaining our Chief Executive Officer and existing management team and hiring and assimilating new key employees and our inability to attract or retain key personnel would materially harm our business and results of operations.

Our success depends on the continuing efforts and abilities of our executive officers, including Mr. Victor Lee, our President and Chief Executive Officer, our other executive officers, and key technical personnel. Our future success also will depend on our ability to attract and retain highly skilled employees, including management, technical and sales personnel. The loss of any of our

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key personnel, the inability to attract, retain or assimilate key personnel in the future, or delays in hiring required personnel could materially harm our business, results of operations and financial condition.

Our PV modules contain limited amounts of cadmium sulfide, and claims of human exposure or future regulations could have a material adverse effect on our business, results of operations and financial condition.

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

Environmental obligations and liabilities could have a substantial negative impact on our financial condition, cash flows and profitability.

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

We currently anticipate having substantial international operations that will subject us to a number of risks, including potential unfavorable political, regulatory, labor and tax conditions in foreign countries.

We expect to expand our operations abroad in the future and, as a result, we may be subject to the legal, political, social and regulatory requirements and economic conditions of foreign jurisdictions. Risks inherent to international operations, include, but are not limited to, the following:

• Difficulty in procuring supplies and supply contracts abroad;

• Difficulty in enforcing agreements in foreign legal systems;

• Foreign countries imposing additional withholding taxes or otherwise taxing our foreign income, imposing tariffs or adopting other restrictions on foreign trade and investment, including currency exchange controls;

• Inability to obtain, maintain or enforce intellectual property rights;

• Risk of nationalization;

• Changes in general economic and political conditions in the countries in which we may operate, including changes in the government incentives we might rely on;

• Unexpected adverse changes in foreign laws or regulatory requirements, including those with respect to environmental protection, export duties and quotas;

• Difficulty with staffing and managing widespread operations;

• Trade barriers such as export requirements, tariffs, taxes and other restrictions and expenses, which could increase the prices of our products and make us less competitive in some countries; and



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Difficulty of, and costs relating to, compliance with the different commercial and legal requirements of the international markets in which we plan to offer and sell our PV products.

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

Existing regulations and policies and changes to these regulations and policies may present technical, regulatory and economic barriers to the purchase and use of PV products, which may significantly reduce demand for our PV products.

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

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

**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 OTCQB Venture Market.

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

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

variety of factors, including:

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

• Fraudulent action of an individual or collusion of two or more people;

• Inappropriate management override of procedures; and

• The possibility that any enhancements to controls and procedures may still not be adequate to assure timely and accurate financial information.

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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 OTCQB 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 OTCQB Venture 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, 2015, our common stock traded (as adjusted to reflect a 1-for-10 reverse stock split of our common stock that occurred on August 26, 2014 (the “Reverse Stock Split”)) as low as \$0.10 and as high as \$2.01. 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 (i) our outstanding shares of Series E convertible preferred stock, (ii) our outstanding shares of Series F convertible preferred stock, (iii) the \$2.0 million of our existing subordinated secured convertible notes that are currently outstanding, (iv) our existing \$32.2 million committed equity line agreement, and (v) our outstanding shares of Series A convertible preferred stock. 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.

Our Series E preferred stock, our Series F preferred stock and our committed equity line all contain variable pricing mechanisms. The number of shares that we will issue pursuant to our Series E preferred stock, our Series F preferred stock and our committed equity line 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,

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a large number of our outstanding shares are not registered under the Securities Act. If and when these shares are registered or become eligible for sale to the public market, the market price of our common stock could also decline.

Our common stock was recently delisted from the NASDAQ Capital Market. Our inability to maintain our listing on NASDAQ 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.

Upon such delisting, 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 OTCQB Venture Market or any other alternative exchanges or markets.

The delisting of our common stock from NASDAQ 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 NASDAQ 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.

TFG Radiant, our largest stockholder, is exempt from the general prohibitions of Section 203 because the transaction by which it became an interested stockholder was approved by our Board. Because TFG Radiant has two representatives on our Board, it is less likely that a third party could become an interested stockholder without the consent of TFG Radiant.

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

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

On April 16, 2014, the parties settled the lawsuit where the Company agreed to pay Jefferies a total of \$2.0 million in equal installments over 40 months. The Company has paid \$1,050,000 through December 31, 2015.

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, 2015, \$340,000 was accrued for the long-term portion of this settlement and \$541,000 was recorded as Current portion of litigation settlement in the Consolidated Balance Sheets.

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 common stock was traded on the NASDAQ Global Market until March 27, 2014. Beginning March 28, 2014, our stock traded on the NASDAQ Capital Market. 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 2014		
First Quarter	\$7.50	\$6.10
Second Quarter	\$5.90	\$3.50
Third Quarter	\$4.70	\$1.82
Fourth Quarter	\$2.11	\$1.03
Fiscal 2015		
First Quarter	\$2.08	\$0.56
Second Quarter	\$1.22	\$0.52
Third Quarter	\$0.64	\$0.10
Fourth Quarter	\$0.26	\$0.11

Holders

As of December 31, 2015, the number of record holders of our common stock was 29. 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, 2015 and 2014, we did not pay any common stock dividends, and we do not expect to declare or



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pay any dividends in the foreseeable future. Payment of future dividends will be within the discretion of our Board of Directors and will depend on, among other factors, our retained earnings, capital requirements, and operating and financial condition.

### Item 6. Selected Financial Data

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

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

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

#### Overview

We are a company formed to commercialize flexible PV modules using our proprietary technology. For the year ended December 31, 2015, we generated \$6.5 million of revenue. Our revenue from product sales was \$6.2 million and revenue from government research and development contracts was \$0.3 million. As of December 31, 2015, we had an accumulated deficit of \$345.1 million.

In 2012, we transitioned our business model adding a second business focused on developing PV integrated consumer electronics. In June of 2012, we launched our new line of consumer products under the EnerPlex™ brand, and introduced our first product, the Surfr™ battery and a 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, battery. The charger adds minimal weight and bulk to the iPhone, yet provides supplemental charging when needed.

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. The Jumpr™ series provides a compact power storage solution for those who need to take the power of the sun with them on the go. Throughout 2014, EnerPlex released multiple additions to the Jumpr line of products: including the Jumpr Stack 3,6 & 9, innovative batteries equipped with tethered micro-USB and Apple Lightning cables and revolutionary Stack & 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 is targeted for consumers who require high-capacity, high-output batteries which remain ultra-portable when compared to the competition. 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. Throughout 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.walmart.com](http://www.walmart.com), [www.brookstone.com](http://www.brookstone.com), [www.newegg.com](http://www.newegg.com) as well as many others including our own e-commerce platform at [www.goenerplex.com](http://www.goenerplex.com). The April 2013 placement of EnerPlex products at Fry's Electronics, a US West Coast consumer electronics retailer, represented our first domestic retail presence. EnerPlex products are carried in all of Fry's 34 stores across 9 states. In 2014 EnerPlex products launched in multiple online and brick-and-mortar partners; including BestBuy.com, 300 premium Verizon Wireless stores via partner The Cellular Connection

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(TCC) and 25 Micro Center stores across 16 states. In the third quarter of 2015, EnerPlex expanded its presence to 456 total TCC Verizon Wireless Premium retailers, adding 156 stores.

During the first quarter of 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. During the second quarter EnerPlex launched the Generatr S100 and select other products exclusively with EVINE, and in the third quarter the Generatr 1200 launched exclusively with EVINE for a limited period.

During the second quarter of 2015 EnerPlex launched its products into two world recognized retailers; including over 100 The Sports Authority stores nationwide, in addition to launching in select Cabela's, "The World's Foremost Outfitter", stores and via Cabela's online catalog. Internationally, EnerPlex products became available in the United Kingdom via the brand's launch with 172 Maplin's stores throughout the country. During the fourth quarter of 2015, EnerPlex launched with GovX, the premier online shopping destination for Military, Law Enforcement and Government agencies.

We continue to design and manufacture PV integrated consumer electronics, as well as portable power applications for commercial and military users. Due to the durability enabled by the monolithic integration employed in 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 the potential applications for our products are numerous.

During 2014 our partner in the United Kingdom, The Solar Cloth Company, won an award in the BIPV category for their use of Ascent Solar's modules in tensioned fabric applications; this application is an example of the high-volume opportunities which Ascent is positioned to take advantage of in the absence of other technologies which can match Ascent's industry leading durability and power-to-weight ratio. During the second quarter of 2015, Ascent Solar began the supply of solar panels for commercial production of the Silent Falcon Unmanned Aircraft. Building on the Company's experience in UAV's (unmanned aerial vehicles) the Company announced, in the third quarter of 2015, a partnership with Bye Aerospace to develop a solar powered aircraft for the improved investigation of Mars.

At the end of the first quarter of 2015, we announced that six EnerPlex products were awarded accolades as Red Dot Design Award winners, recognizing both the aesthetic as well as functional design of the Jumpr Quad, Jumpr Stack 3/6/9, the Generatr 100 and the Generatr 1200. During the third quarter of 2015 the Generatr 100 won a Best of Show Award at the CTIA Super Mobility show in Las Vegas. 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.

### 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 consumer oriented products focusing on charging devices powered by or enhanced 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.

On December 28, 2013, we entered into a definitive agreement for the establishment of a joint venture with the Government of the Municipal City of Suqian in Jiangsu Province, China (“Suqian”). The purpose of the joint venture was to build a factory located in Suqian to manufacture our proprietary photovoltaic modules. The Suqian joint venture project had progressed more slowly than originally anticipated due to a number of factors including short supply of needed technical skills in the Suqian area

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and other factors affecting the long term viability of the partnership. Accordingly, on August 5, 2015, Suqian and the Company mutually agreed to terminate the joint venture project.

The parties will liquidate the joint venture and distribute any available proceeds to the parties pro rata in accordance with the parties' contributions to the joint venture to date. The Company received approximately \$191,000 in cash upon liquidation of the joint venture during the year ended December 31, 2015. The Company's contributions to the joint venture have consisted of (i) \$320,000 in cash and (ii) certain technical and engineering consulting services. The Company does not anticipate having any material current or ongoing liabilities relating to the joint venture or its termination.

### Related Party Activity

In February 2012, we announced the appointment of Victor Lee as President and Chief Executive Officer. Mr. Lee had served on our Board of Directors since November 2011 and is currently the managing director of Tertius Financial Group Pte Ltd, the joint venture partner with Radiant Group, in TFG Radiant. In April 2012, we appointed the Chairman of TFG Radiant, Mr. Winston Xu (aka Xu Biao), as a member of our Board of Directors. TFG Radiant owns approximately 3% of our outstanding common stock as of March 9, 2016.

The addition of TFG Radiant as a major shareholder has significantly improved our capabilities on a number of fronts. TFG Radiant's domicile in China provides us access to high quality, low cost contract manufacturing in Asia through expansion of TFG Radiant's existing relationships, developed through many years of successful operation in China. Integrating these suppliers into our supply chain enables us to bring our products to market faster. TFG Radiant also provides a global product perspective that significantly improves the product design activities of our Thornton, Colorado designers as they collaborate with designers in Asia. We continue to integrate and improve the design-to-manufacture process where we manufacture modules in our US plant, ship them to Asia for completion into finished goods at low cost and then ship products to all markets we will serve.

In June 2012, we entered into a supply agreement and a contract manufacturing agreement with TFG Radiant. Under the terms of the contract manufacturing agreement TFG Radiant will oversee certain aspects of the contract manufacturing process related to our EnerPlex™ line of consumer products. We compensated TFG Radiant for acting as general contractor in the contract manufacturing process. Under the supply agreement TFG Radiant intends to distribute our consumer products in Asia. In December 2012, we entered into a consulting agreement with TFG Radiant for product design, product development and manufacturing coordination activities provided by TFG Radiant to us in connection with our line of consumer electronics products. This services agreement was terminated during the first quarter of 2014.

During the year ended December 31, 2015, the Company made no disbursements to TFG Radiant. During the year ended December 31, 2014, the Company made disbursements to TFG Radiant in the amount of \$518,000. Included within these disbursements is \$200,000 for consulting fees and \$318,000 for finished goods received and deposits for work-in-process. During the years ended December 31, 2015 and 2014, the Company recognized revenue in the amount of \$0 and \$8,000, respectively, for products sold to TFG Radiant under the supply agreement. As of December 31, 2015 and 2014, the Company had \$0 in receivables and deposits with TFG Radiant.

### Significant Trends, Uncertainties and Challenges

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

- our ability to generate customer acceptance of and demand for our products;
- successful ramping up of commercial production on the equipment installed;
- our products are successfully and timely certified for use in our target markets;
- successful operating of production tools to achieve the efficiencies, throughput and yield necessary to reach our cost targets;
- the products we design are saleable at a price sufficient to generate profits;
- our strategic alliance with TFG Radiant results in the design, manufacture and sale of sufficient products to achieve profitability;
- our ability to raise sufficient capital to enable us to reach a level of sales sufficient to achieve profitability on terms favorable to us;





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we are able to successfully design, manufacture, market, distribute and sell our newly introduced line of consumer oriented products;

- 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 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 Company's activities from inception through December 31, 2014 consisted substantially of raising capital, research and development, establishment and development of the Company's production plant, product development and establishing sales channels for its line of consumer products which is sold under the EnerPlex™ brand. Revenues from inception through December 31, 2014 had been primarily generated from the Company's governmental research and development contracts until EnerPlex branded products began to sell in higher volumes in 2014. During this time period the Company's primary focus was not generating significant revenue, and thus cost of revenue was not considered a relevant number due to the development nature of the Company. As such, the majority of the Company's costs were considered to be research and development costs from inception through December 31, 2014. Beginning in 2015, due to the success of EnerPlex branded products, the Company's primary focus going forward is to build on the Company's past results and to significantly increase our revenues. As the Company's primary focus is increasing revenues by utilizing and expanding the sales channels established during prior years, the Company has determined that cost of revenue is a relevant number going forward. As such, the Company has included a Cost of revenues line item in the Consolidated Statements of Operations for the year ended December 31, 2015.

### Significant Accounting Policies

**Related Party Transactions:** We are party to several operating agreements, including a Joint Development Agreement, a Supply Agreement, a Contract Manufacturing Agreement, and a Services Agreement with TFG Radiant, which is also our largest shareholder. Accounting for transactions under these agreements is consistent with those defined in our Significant Accounting Policies. Additional disclosure of related party transactions is included in our financial statements and footnotes.

### Revenue Recognition:

**Product revenue -** We generated product revenues of \$6,205,000 for the year ended December 31, 2015. 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. Estimated costs of returns and allowances 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.

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Convertible Preferred Stock: During the second and third quarter of 2013, we issued Series A preferred stock and warrants. Upon issuance, the Series A preferred stock was evaluated under FASB ASC 480, "Distinguishing Liabilities from Equity" and it was determined the Series A preferred stock was not within the scope of ASC 480; therefore, the Series A preferred stock was not considered a liability under ASC 480. The warrants associated with the Series A preferred stock offering were also not considered a liability as assessed under ASC 480.

During the fourth quarter of 2013, we issued Series B preferred stock. Upon issuance, the Series B preferred stock was evaluated under FASB ASC 480, "Distinguishing Liabilities from Equity" and it was determined the Series B preferred stock was not within the scope of ASC 480; therefore, the Series B preferred stock was not considered a liability under ASC 480.

During the second quarter of 2014, we issued Series C preferred stock. Upon issuance, the Series C preferred stock was evaluated under FASB ASC 480, "Distinguishing Liabilities from Equity" and it was determined the Series C preferred stock was not within the scope of ASC 480; therefore, the Series C preferred stock was not considered a liability under ASC 480.

During the fourth quarter of 2014, we issued Series D preferred stock. Upon issuance, the Series D preferred stock was evaluated under FASB ASC 480, "Distinguishing Liabilities from Equity" and it was determined the Series D preferred stock was within the scope of ASC 480; therefore, the Series D preferred stock was considered a liability under ASC 480.

During the first quarter of 2015, we issued Series D-1 preferred stock. Upon issuance, the Series D-1 preferred stock was evaluated under FASB ASC 480, "Distinguishing Liabilities from Equity" and it was determined the Series D-1 preferred stock was within the scope of ASC 480; therefore, the Series D-1 preferred stock was considered a liability under ASC 480.

During the fourth quarter of 2015, we issued Series E preferred stock. Upon issuance, the Series E preferred stock was evaluated under FASB ASC 480, "Distinguishing Liabilities from Equity" and it was determined the Series E preferred stock was within the scope of ASC 480; therefore, the Series E preferred stock is considered a liability under ASC 480.

Make-whole dividend liability: The Series A, Series B, and Series C preferred stock issuances include make-whole provisions with variable rate dividends which are indexed to our own stock. The make-whole provisions have attributes of embedded derivatives and were evaluated under ASC 815, "Derivatives and Hedging" ("ASC 815"). We believe the Series A, Series B, and Series C preferred stock are considered equity hosts for the purposes of evaluating the make-whole provisions for potential bifurcation. The Series A, Series B, and Series C preferred stock holders may convert to common shares at any time after issuance. Upon conversion, the holders are entitled to a make-whole dividend which is payable in cash or common shares, at our election. We concluded the make-whole payments should be characterized as embedded derivatives under ASC 815. The fair value of make-whole dividend liabilities must be evaluated at each period end, with changes recorded as a component of Other Income/(Expense).

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 lifecycle 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. During the years ended December 31, 2015 and December 31, 2014, the Company recognized no lower of cost or market adjustments.

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, 2015 and 2014, we incurred impairments of our manufacturing facilities and equipment in the amounts of \$12,600 and \$324,000, respectively, based on estimates prepared by management.

Research, Development and Manufacturing Operations Costs: Research, development and manufacturing operations expenses were \$6.7 million and \$18.8 million for the years ended December 31, 2015 and 2014, 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

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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 and is reduced for estimated forfeitures. Forfeitures are estimated at the time of grant and revised, as necessary, in subsequent periods if actual forfeitures differ from those estimates. For purposes of determining estimated fair value of share-based payment awards on the date of grant, we use the Black-Scholes option-pricing model ("Black-Scholes Model") for option awards. The Black-Scholes Model requires the input of highly subjective assumptions. Because our employee stock options may have characteristics significantly different from those of traded options, and because changes in the subjective input assumptions can materially affect the fair value estimate, in management's opinion, the existing models may not provide a reliable single measure of the fair value of our employee stock options. Management will continue to assess the assumptions and methodologies used to calculate estimated fair value of share-based compensation. Circumstances may change and additional data may become available over time, which result in changes to these assumptions and methodologies, which could materially impact our fair value determination. We estimate the fair value of our restricted stock awards at our stock price on the grant date.

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

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

### Recent Accounting Pronouncements

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 us in fiscal year 2018. We are researching whether the adoption of ASU 2014-09 will have a material effect on the our consolidated financial statements.

In August 2014, FASB issued ASU No. 2014-15, Presentation of Financial Statements-Going Concern (Subtopic 205-40). This ASU provides guidance to determine when and how to disclose going-concern uncertainties in the financial statements. The new standard requires management to perform interim and annual assessments of an entity's ability to continue as a going concern within one year of the date that the financial statements are issued. An entity must provide certain disclosures if conditions or events raise substantial doubt about the entity's ability to continue as a going concern. The standard will be effective for us for fiscal years beginning in 2016. We are evaluating the impact of the adoption of this accounting standard update on its financial statements.

In July 2015, the FASB issued ASU No. 2015-11, Inventory (Topic 330): Simplifying the Measurement of Inventory, which states that inventory should be measured at the lower of cost and net realizable value. Net realizable value is

defined as estimated selling price in the ordinary course of business, less reasonably predictable costs of completion, disposal and transportation. This ASU is effective within annual periods beginning on or after December 15, 2016, including interim periods within that reporting period. We are currently evaluating the impact, if any, that the adoption of this guidance will have on our 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

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and fiscal years beginning after December 15, 2018, and early application is permitted. We are currently evaluating the impact, if any, that the adoption of this guidance will have on our consolidated financial statements.

Results of Operations

Comparison of the Years Ended December 31, 2015 and 2014

Revenues. Our revenues were \$6,537,000 for the year ended December 31, 2015 compared to \$5,336,000 for the year ended December 31, 2014, an increase of \$1,201,000. Revenues for the years ended December 31, 2015 and December 31, 2014 included product sales of \$6,205,000 and \$5,012,000, respectively. Revenues earned on our government research and development contracts increased by \$9,000 for the year ended December 31, 2015 due to the addition of new government contracts.

Cost of revenues. Our Cost of revenues for the year ended December 31, 2015 was \$9,563,000, which is comprised of Materials and Freight of \$5,758,000, Direct Labor of \$921,000, and Overhead of \$2,884,000. 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. As such management's focus going forward is to improve gross margin through increased sales and improved utilization of our factory. Direct materials related to product sales were \$4,304,000 for the year ended December 31, 2015, which is approximately 69% of product sales. We are currently offering promotions and discounts in order to penetrate new markets. While these promotions and discounts have proved effective in building our brand and acquiring new customers, our gross margins have been negatively impacted. Long term we anticipate substantial improvements in gross margins for product sales.

Research, development and manufacturing operations costs. Research, development and manufacturing operations costs were \$6,712,000 for the year ended December 31, 2015 compared to \$18,791,000 for the year ended December 31, 2014, a decrease of \$12,079,000. The primary reason for the decrease is due to the segregation and creation of a new line item in our consolidated statement of operations added during 2015, Cost of revenues, which was \$9,563,000 for the year ended December 31, 2015. 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, 2015:

Materials and Equipment Related expenses decreased \$7,397,000 for the year ended December 31, 2015 as compared to the year ended December 31, 2014. The decrease is primarily due to the fact that materials costs are included in the Cost of revenues line item for the year ended December 31, 2015.

Personnel related expenses decreased \$2,082,000 as compared to 2014. \$183,000 of the decrease was related to non-cash stock compensation expense. The overall decrease in personnel related costs was primarily due a decrease in personnel and due to direct labor that is included in the Cost of revenues line item for the year ended December 31, 2015.

Consulting and Contract Services decreased by \$1,112,000 from the prior year. The decrease in expense as compared to the prior year was primarily attributed to the termination of the consulting services contract with TFGR, effective March 31, 2014 and product design fees incurred during the year ended December 31, 2014 that were non-recurring in 2015.

Facility Related Expenses decreased \$1,258,000 during the twelve months ended December 31, 2015. The decrease is due to the fact that some overhead costs are included in the Cost of Revenue line item for the year ended December 31, 2015.

Selling, general and administrative. Selling, general and administrative expenses were \$12,363,000 for the year ended December 31, 2015 compared to \$14,119,000 for the year ended December 31, 2014, a decrease of \$1,756,000. The following factors contributed to the decrease in selling, general, and administrative expenses during 2015:



1. Personnel related costs increased \$1,423,000 during the twelve months ended December 31, 2015. \$128,000 of this increase was related to non-cash stock compensation expense. The overall increase in personnel related costs was due to additional sales and management personnel hired during 2015 in order to facilitate our increase in sales. The Company does not anticipate a significant change in employee headcount for 2016.

2. Marketing and related expenses decreased \$1,387,000 as compared to the prior year. During 2014, the Company implemented aggressive marketing and advertising campaigns in order to build our brand, which included television

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advertisements, print advertisements, and trade shows. During 2015, the Company did not incur the same level of advertising and marketing related expenses as 2014. Additionally, the decrease in the number of our retail kiosks operating during 2015 has contributed to the overall decrease in marketing and related expenses.

Legal expenses decreased by \$339,000 from the prior year. The decrease in legal expenses is due to litigation that occurred in 2014. During the first quarter of 2014 we incurred costs related to the Jefferies lawsuit and we have not incurred significant expenses related to any lawsuits during 2015.

Consulting and contract services decreased \$1,406,000 during the twelve months ended December 31, 2015 due to decreased staffing costs associated with our retail kiosks. We operated 13 retail kiosks during 2014 and only 2 retail kiosks during the majority of 2015.

Impairment loss. Impairment losses incurred as a result of write downs of Property, Plant and Equipment were \$13,000 and \$324,000 for years ended December 31, 2015 and 2014, respectively. The impairment loss incurred during both 2015 and 2014 was the result of certain manufacturing equipment no longer being utilized for its intended purpose.

Other Income/(Expense), net. Other Income/(Expense) was \$18,051,000 net expense for the year ended December 31, 2015 compared to \$9,495,000 net expense for the year ended December 31, 2014, an increase of \$8,556,000. The following factors contributed to the increase in other income/(expense), net during 2015:

Interest Expense increased \$22,440,000 as compared to 2014. The increase is due to non-cash interest expense and amortization of debt discounts related to the Notes, Series D Preferred Stock, Series D-1 Preferred Stock, Series E Preferred Stock, and the September 2015 Convertible Notes. The non-cash portion of interest expense for the year ended December 31, 2015 was \$25,938,000.

Deemed (non-cash) Interest Expense on Warrant Liability decreased \$3,128,000 during the year ended December 31, 2015 due to a lower number of warrants issued in connection with our financing transactions during 2015 as compared to 2014.

Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net fluctuated \$10,519,000 as compared to the year ended December 31, 2014, resulting in a net gain as of December 31, 2015. The fluctuation in this non-cash item primarily relates to our extinguishments of our warrant liabilities and the Notes during the third and fourth quarters of 2015.

Net Loss. Our Net Loss was \$45,798,000 for the year ended December 31, 2015, compared to a Net Loss of \$43,354,000 for the year ended December 31, 2014, an increase in Net Loss of \$2,444,000. The increase in Net Loss for the year ended December 31, 2015 can be summarized in variances in significant account activity as follows:

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	(Increase) decrease in Net Loss For the Year Ended December 31, 2015 Compared to the Year Ended December 31, 2014
Revenues	\$ 1,201,000
Cost of Revenue	(9,563,000 )
Research, development and manufacturing operations	
Materials and Equipment Related Expenses	7,397,000
Personnel Related Expenses	2,082,000
Consulting and Contract Services	1,112,000
Facility Related Expenses	1,258,000
Other Miscellaneous Costs	230,000
Selling, general and administrative expenses	
Personnel Related Expenses	(1,423,000 )
Marketing Related Expenses	1,387,000
Legal Expenses	339,000
Public Company Costs	93,000
Consulting and Contract Services	1,406,000
Other Miscellaneous Costs	(45,000 )
Depreciation and Amortization Expense	327,000
Impairment loss	311,000
Other Income/(Expense)	
Interest Expense	(22,440,000 )
Other Income/Expense	237,000
Deemed (non-cash) Interest Expense on Warrant Liability	3,128,000
Non-Cash Change in Fair Value of Derivative Liabilities and Gain/Loss on Extinguishment of Liabilities, net	10,519,000
Increase to Net Loss	\$ (2,444,000 )

**Liquidity and Capital Resources**

On November 14, 2014, we entered into a securities purchase agreement (the "November 2014 Purchase Agreement") with one institutional and accredited investor (the "Investor"). Pursuant to the terms of the November 2014 Purchase Agreement, we sold to the Investor (i) \$3,000,000 (3,000 shares) of Series D Convertible Preferred Stock (the "Series D Preferred Stock"), and (ii) \$32,000,000 original principal amount of senior secured convertible notes (the "Notes"). On September 4, 2015, we entered into a Cancellation and Waiver Agreement (the "Cancellation Agreement"), with the Investor. Pursuant to the Cancellation Agreement, we agreed to retire all \$21.2 million aggregate principal amount of its currently outstanding Notes. The Cancellation Agreement was amended on October 8, 2015 and November 22, 2015.

In February 2015, we completed the sale of 2,500 shares of Series D-1 preferred stock in a private placement for gross proceeds of \$2.5 million. The transaction closed on February 25, 2015.

On April 6, 2015, we entered into a securities purchase agreement with TFG Radiant for a private placement of a total of 1,000,000 shares of our common stock which resulted in gross proceeds of approximately \$1 million. The transaction closed on April 17, 2015.

On June 10, 2015, we entered into a securities purchase agreement with TFG Radiant for a private placement of a total of 1,000,000 shares of our common stock which resulted in gross proceeds of approximately \$1 million. The transaction closed on July 10, 2015.

On September 4, 2015, we entered into a note purchase agreement with two accredited investors (the “Lenders”). Pursuant to the new loan agreement, we issued to the Lenders \$1.5 million original principal amount of secured subordinated convertible notes on September 4, 2015, and an additional \$0.5 million original principal amount of secured subordinated convertible notes on September 28, 2015 (collectively, the “September 2015 Convertible Notes”). All amounts due under the

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September 2015 Convertible Notes are convertible at any time, in whole or in part, at the option of the Lenders into shares of Common Stock at a fixed conversion price, which is subject to adjustment for stock splits, stock dividends, combinations or similar events, of \$0.12 per share. Unless earlier converted or redeemed, the September 2015 Convertible Notes will mature on September 4, 2016 (the "Maturity Date"). The September 2015 Convertible Notes bear interest at a rate of 8% per annum. Principal and interest on the September 2015 Convertible Notes is payable on the Maturity Date.

On November 4, 2015, we entered into a securities purchase agreement with a private investor (the "Private Investor") to issue 2,800 shares of Series E Preferred Stock to an investor in exchange for \$2,800,000. Shares of the Series E Preferred Stock (including the amount of any accrued and unpaid dividends thereon) are convertible at the option of the holder into common stock at a variable conversion price equal to 80% of the average of the two lowest volume weighted average prices of our common stock for the ten consecutive trading day period prior to the conversion date. Holders of the Series E Preferred Stock will be entitled to dividends in the amount of 7% per annum, payable when, as and if declared by the Board of Directors in its discretion.

On November 10, 2015, we entered into a committed equity line purchase agreement (the "CEL") with the Private Investor. Under the terms and subject to the conditions of the CEL purchase agreement, at our option we have the right to sell to the Private Investor, and the Private Investor is obligated to purchase from us, up to \$32.2 million of our common stock, subject to certain limitations, from time to time, over the 36-month period commencing on December 18, 2015, the date that the registration statement was declared effective by the SEC. The remaining availability under the CEL as of December 31, 2015 is \$30.2 million.

Actual sales of shares of common stock to the Private Investor under the CEL purchase agreement will depend on a variety of factors to be determined by us from time to time, including, among others, our ability to register shares of common stock with the SEC, market conditions, the trading price of the common stock and determinations by us as to the appropriate sources of funding for our operations.

As of January 27, 2016, we were not able to access the CEL because we do not have any registered shares available for use in connection with the CEL purchase agreement. We are in the process of registering an additional 48,000,000 shares for such purpose with the SEC. If such additional registration statement is declared effective by the SEC and such additional shares become available for use, our sales of shares pursuant to the CEL purchase agreement during 2016 would be limited to such 48,000,000 shares. Our use of the CEL in 2017 and beyond would require, among other things, us to file additional registration statements in the future that cover additional shares and have such registration statements declared effective. We would also need to maintain the effectiveness of such additional registration statements.

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 2015 we used \$22.1 million in cash for operations, or an average of \$5.5 million per quarter. During the fourth quarter of 2015 we used \$4.6 million in cash for operations. Our primary significant long term obligation consists of a note payable of \$5.8 million to a financial institution secured by a mortgage on our headquarters and manufacturing building in Thornton, Colorado. Total payments of \$0.8 million, including principal and interest, will come due in 2016. Additionally, we owe \$0.9 million as of December 31, 2015 related to a litigation settlement reached in April 2014, which is being paid in equal installments over 40 month which began April 2014.

Additional projected product revenues are not anticipated to result in a positive cash flow position for the year 2016 overall. As such, cash liquidity sufficient for the year ending December 31, 2016 will require additional financing. Subsequent to year end, on January 19, 2016, we entered into a securities purchase agreement (the "Series F SPA") with the Private Investor for the sale of \$7,000,000 of our newly designated Series F 7% Convertible Preferred Stock (the

“Series F Preferred Stock”).

We have continued to accelerate sales and marketing efforts related to our consumer products strategy through increased hiring and expansion of our sales channel. We have begun activities related to securing additional financing through strategic or financial investors, but there is no assurance we will be able to raise additional capital on acceptable terms or at all. If our revenues do not increase rapidly, and/or additional financing is not obtained, we will be required to significantly curtail operations to reduce costs and/or sell assets. Such actions would likely have an adverse impact on our future operations. As a result of our recurring losses from operations, and the need for additional financing to fund our operating and capital requirements, there is uncertainty regarding our ability to maintain liquidity sufficient to operate our business effectively, which raises substantial doubt as to our ability to continue as a going concern.

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## Statements of Cash Flows Comparison of the Years Ended December 31, 2015 and 2014

For the year ended December 31, 2015, our cash used in operations was \$22.1 million compared to \$28.1 million for the year ended December 31, 2014, a decrease of \$6.0 million. The decrease is primarily the result of reduced expenses from operations during the current year. For the year ended December 31, 2015, our cash used in investing activities was \$0.2 million compared to cash used in investing activities of \$1.1 million for the year ended December 31, 2014, a decrease of \$0.9 million. The decrease in cash used in investing activities is primarily the result of receiving cash upon the dissolution of the Suqian Joint Venture and reduced equipment purchases and patent activity costs. During the year ended December 31, 2015, negative operating cash flows of \$22.1 million were funded through \$5.3 million of funding received from issuances of preferred stock, \$2 million of funding received from issuances of common stock to TFG Radiant, \$9.5 million released from the control account, \$2 million of funding received from the September 2015 Convertible Notes, \$2 million received from the Committed Equity Line, and the use of cash and cash equivalents held at December 31, 2014.

## Contractual Obligations

The following table presents our contractual obligations as of December 31, 2015. 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.

Contractual Obligations	Total	Payments Due by Year (in thousands)			
		Less Than 1 Year	1-3 Years	3-5 Years	More Than 5 Years
Long-term debt obligations	\$9,388	\$1,351	\$2,431	\$1,387	\$4,219
Operating lease obligations	26	26	—	—	—
Purchase obligations	1,864	1,864	—	—	—
Total	\$11,278	\$3,241	\$2,431	\$1,387	\$4,219

## Off Balance Sheet Transactions

As of December 31, 2015, 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, 2015 and 2014.

We hold no significant funds and have no future obligations denominated in foreign currencies as of December 31, 2015.

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, 2015, our cash equivalents consisted only of operating, restricted, and savings accounts held with financial institutions. From time to time, we hold 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



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associated with fluctuating interest rates is limited to our investment portfolio, and we do not believe a change in interest rates will have a significant impact on our financial position, results of operations or cash flows.

### Credit Risk

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

### Item 8. Financial Statements and Supplementary Data

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

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

None.

### Item 9A. Controls and Procedures

#### Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures designed to ensure that information required to be disclosed in our reports filed or submitted under the Securities Exchange Act of 1934, as amended (the “Exchange Act”) is recorded, processed, summarized and reported within the time periods specified in Securities and Exchange Commission rules and forms. Our disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed in our reports filed under the Exchange Act is accumulated and communicated to management as appropriate to allow timely decisions regarding required disclosures. Our management conducted an evaluation required by Rules 13a-15 and 15d-15 under the Exchange Act of the effectiveness of our disclosure controls and procedures as defined in Rules 13a-15 and 15d-15 under the Exchange Act as of December 31, 2015. Based on this evaluation, our management concluded the design and operation of our disclosure controls and procedures were effective as of December 31, 2015.

#### 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.

Our management conducted an evaluation of the effectiveness of our internal control over financial reporting as of December 31, 2015 based on the Internal Control — Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this evaluation, our management concluded our internal control over financial reporting was effective as of December 31, 2015. Our management reviewed the results of its assessment with the Audit Committee.

This annual report does not include an attestation report from our independent registered public accounting firm regarding internal control over financial reporting. Management’s report was not subject to attestation by our registered public accounting firm pursuant to Sarbanes-Oxley Rule 404(c).

#### Changes in Internal Control over Financial Reporting



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There were no changes in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) that occurred during the quarter ended December 31, 2015 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

None.

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## PART III

## Item 10. Directors, Executive Officers and Corporate Governance

## EXECUTIVE OFFICERS AND DIRECTORS

Our executive officers, continuing directors and director nominees, their ages and positions with us as of March 9, 2016, are as follows:

Name	Age	Position
Victor Lee	48	President and Chief Executive Officer, Director
Amit Kumar, Ph.D.	51	Chairman of the Board, Director
Kim J. Huntley	61	Director
G. Thomas Marsh	72	Director
Xu Biao	46	Director

Victor Lee (Lee Kong Hian) has been the President and Chief Executive Officer of Ascent Solar Technologies Inc. since February 1, 2012 and as a member of our Board since November 2011. Mr. Victor Lee is the managing director of Tertius Financial Group Pte Ltd, a boutique corporate advisory and private investment firm he founded in February 2009. He brings more than 17 years of experience in corporate banking, real estate finance and investment management, and corporate advisory services at leading worldwide financial institutions. Mr. Victor Lee began his career at Citibank N.A., in 1993, handling small- and medium-sized corporate finance and progressed to a vice president position in the International Personal Banking Division. In 1999 he moved to Deutsche Bank AG as Vice President and in 2004 was promoted to managing director Singapore Market Head in the Private Wealth Management Division, where he was responsible for management of approximately \$1 Billion in assets. From 2007 until 2009, he was with Morgan Stanley Private Wealth Management, most recently as executive director and head of Singapore/Malaysia markets. Mr. Victor Lee holds a Bachelor's degree in Accounting from the University of Wisconsin and a Master's in Wealth Management from the Singapore Management University. Mr. Victor Lee is a designated board representative of TFG Radiant pursuant to the Amended and Restated Stockholders Agreement between us and TFG Radiant.

Amit Kumar, Ph.D. has served on our Board of Directors since June 2007 and as Chairman since January 2011. Dr. Kumar is currently Vice Chairman of ITUS Corporation (NASDAQ:ITUS) and Executive Chairman and CEO of Anixa Diagnostics Corporation, both operating in the area of cancer research. From December 2010 to June 2016 Dr. Kumar was CEO of Geo Fossil Fuels, LLC, a privately held Energy company. From September 2001 until June 30, 2010, Dr. Kumar was President and CEO of CombiMatrix Corporation (NASDAQ: CBMX). Previously, Dr. Kumar was Vice President of Life Sciences of Acacia Research Corp (NASDAQ: ACTG). From January 1999 to February 2000, Dr. Kumar was the founding President and Chief Executive Officer of Signature BioSciences, Inc., a life science company developing technology for advanced research in genomics, proteomics and drug discovery. From January 1998 to December 1999, Dr. Kumar was an Entrepreneur in Residence with Oak Investment Partners, a venture capital firm. From October 1996 to January 1998, Dr. Kumar was a Senior Manager at IDEXX Laboratories, Inc., a biotechnology company. From October 1993 to September 1996, Dr. Kumar was Head of Research & Development for Idetek Corporation, which was later acquired by IDEXX Laboratories, Inc. Dr. Kumar received his B.S. degree in chemistry from Occidental College. After joint studies at Stanford University and the California Institute of Technology, he received his Ph.D. in Chemistry from Caltech in 1991. He also completed a post-doctoral fellowship at Harvard University in 1993. Dr. Kumar has authored and co-authored over 40 peer-reviewed publications and holds a dozen patents. Dr. Kumar brings significant leadership experience as well as experience in photovoltaic research including work on energy conversion using cells made from silicon (single crystal, polycrystalline, and amorphous), gallium arsenide, indium phosphide, metal oxides and other materials. Dr. Kumar is a member of the Board of Directors of Aeolus Pharmaceuticals (OTC: AOLS).

Kim J. Huntley has served on our Board of Directors since June 2010. Mr. Huntley served in the Defense Logistics Agency (DLA) of the U.S. Department of Defense (DOD) for more than 32 years in positions of increasing

responsibility. Most recently, from July 2008 until his retirement in January 2010, Mr. Huntley served as Director of the Defense Energy Support Center (DESC) in Fort Belvoir, Virginia. The DESC operates as part of the DLA and is responsible for providing energy solutions to the DOD and federal civilian agencies. As Director of the DESC, Mr. Huntley was the principal executive officer in charge of approximately 1,100 employees worldwide and over \$25 billion in annual appropriations involving energy infrastructure and products. From March 2006 and immediately prior to becoming Director of the DESC, Mr. Huntley served in leadership roles involving supply chain management, including Deputy Commander for the Defense Supply Center in Richmond, Virginia and Columbus, Ohio, and as Executive Director of Customer Support and Readiness. From December

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2003 to March 2006, Mr. Huntley served as Chief of the Customer Support Office in Fort Belvoir, Virginia. Mr. Huntley chaired the Inter Agency Working Group for Alternative Fuels and Renewable Energy from January 2009 to January 2010. The Group included senior energy representatives from DOD, DOE, EPA, and other major Federal Agencies. Mr. Huntley holds a B.A. degree in Economics from Golden Gate University and attended post-graduate courses in economics at California State University, Hayward. Mr. Huntley brings extensive supply chain, budget and defense industry experience to our Board.

G. Thomas Marsh has served on our Board of Directors since June 2010. In June 2006, Mr. Marsh retired as Executive Vice President of Lockheed Martin Space Systems Company, a subsidiary of Lockheed Martin Corporation. Lockheed Martin Space Systems designs, develops, tests, manufactures and operates advanced-technology systems, including human space flight systems, satellites and instruments, space observatories and interplanetary spacecraft, laser radar, fleet ballistic missiles, and missile defense systems. From 1969 until its merger in 1995 to form Lockheed Martin Corporation, Mr. Marsh worked at Martin Marietta Corporation, most recently in the position of President, Manned Space Systems. After 1995, he held positions of increasing responsibility within Lockheed Martin Corporation, including serving as President and General Manager of the Missiles and Space Operations business unit from 2002 until his appointment as Executive Vice President of Lockheed Martin Space Systems in 2003. Mr. Marsh was responsible for business operations and the activities of approximately 18,000 Space Systems employees. Mr. Marsh holds a B.S. degree in Electrical Engineering from the University of New Mexico, an M.B.A. from the University of Colorado, and attended the Massachusetts Institute of Technology's Sloan School of Management. Mr. Marsh brings a background in executive management and deep experience with the space and defense industries to our Board.

Xu Biao (Winston Xu) has served on our Board of Directors since April 2012. Mr. Xu currently serves as the Chairman of Radiant Group which he founded in 1997, and as the Chairman of TFG Radiant Investment Group Ltd., a joint venture between Radiant Group and Tertius Financial Group, a private investment firm based in Singapore. Mr. Xu has more than 15 years of experience with investments and operations for a broad spectrum of business start-ups, developments, turnarounds and private equity investments. As a fellow Chartered Institute of Building ("CIOB") member, Mr. Xu is an industry expert in the areas of metallic roofing design and construction, building materials, manufacturing, and international trading. Mr. Xu is a self-made entrepreneur and has businesses footprints spanning the world. He started his career in 1995 as a project manager for Shenzhen Nanli Decorate Construction Company where he designed and developed over thirty types of profiles and systems and is the owner of such intellectual property. He is a certified engineer in Construction Management from China National Institute of Engineers. He holds a Bachelor of Science degree in Industrial Design from ZhongNan Industrial University, and a MBA from QingHua University. Mr. Xu is a designated board representative of TFG Radiant pursuant to the Amended and Restated Stockholders Agreement between us and TFG Radiant.

## CORPORATE GOVERNANCE

### Overview

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

Our Certificate of Incorporation provides that the Board of Directors will be divided into three classes. Our Class 1 director is Dr. Amit Kumar. Our Class 2 directors are Kim J. Huntley and G. Thomas Marsh. Our Class 3 directors are Victor Lee and Xu Biao. The terms of Messrs. Huntley and Marsh will expire at the Company's 2016 annual stockholder meeting.

### Board Leadership Structure and Role in Risk Oversight

We currently separate the roles of Chairman of the Board and Chief Executive Officer. We believe that Dr. Kumar possesses the strategic, technical and industry knowledge and expertise to serve as our Chairman. As President and Chief Executive Officer, Mr. Victor Lee is responsible for day-to-day oversight of our operations and personnel.

Notwithstanding the foregoing, our Board does not have a formal policy regarding separation of the Chairman and Chief Executive Officer roles, and the Board may in the future decide to implement such a policy if it deems it in the best interests of us and our stockholders. The Board does not have a lead independent director.

Risk is inherent with every business, and how well a business manages risk can ultimately determine its success. We face a number of risks, including credit risk, interest rate risk, liquidity risk, operational risk, strategic risk and reputation risk. Management is responsible for the day-to-day management of risks we face, while the Board, as a whole and through its committees, has responsibility for the oversight of risk management. In its risk oversight role, the Board of Directors has the responsibility to satisfy itself that the risk management processes designed and implemented by management are adequate and functioning as

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designed. To do this, the Chairman of the Board meets regularly with management to discuss strategy and the risks we face. In addition, the Audit Committee regularly monitors our enterprise risk, including financial risks, through reports from management. Senior management attends the Board meetings and is available to address any questions or concerns raised by the Board on risk management and any other matters. The Chairman of the Board and independent members of the Board work together to provide strong, independent oversight of our management and affairs through the Board's standing committees and, when necessary, executive sessions of the independent directors.

**Committees of the Board of Directors**

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

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

- selecting, hiring and terminating our independent auditors;
- evaluating the qualifications, independence and performance of our independent auditors;
- approving the audit and non-audit services to be performed by our independent auditors;
- reviewing the design, implementation, adequacy and effectiveness of our internal controls and critical accounting policies;
- reviewing and monitoring the enterprise risk management process;
- overseeing and monitoring the integrity of our financial statements and our compliance with legal and regulatory requirements as they relate to financial statements or accounting matters;
- reviewing, with management and our independent auditors, any earnings announcements and other public announcements regarding our results of operations; and
- preparing the report that the SEC requires in our annual proxy statement.

Our Audit Committee is comprised of Mr. Huntley, Dr. Kumar and Mr. Marsh. Mr. Huntley serves as Chairman of the Audit Committee. The Board has determined that all members of the Audit Committee are independent under the rules of The NASDAQ Stock Market, and that Mr. Huntley qualifies as an "audit committee financial expert," as defined by the rules of the SEC.

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

- approving the compensation and benefits of our executive officers;
- reviewing the performance objectives and actual performance of our officers; and
- administering our stock option and other equity compensation plans.

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

Our Compensation Committee is comprised of Mr. Marsh, Mr. Huntley and Dr. Kumar. Mr. Marsh serves as Chairman of the Compensation Committee. Our Board has determined that all members of the Compensation Committee are independent under the rules of The NASDAQ Stock Market.



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

- evaluating the composition, size and governance of our Board and its committees and making recommendations regarding future planning and the appointment of directors to our committees;
- establishing a policy for considering stockholder nominees for election to our Board; and
- evaluating and recommending candidates for election to our Board.

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Our Nominating and Governance Committee is comprised of Dr. Kumar, Mr. Huntley, and Mr. Marsh. Dr. Kumar serves as Chairman of our Nominating and Governance Committee. Our Board has determined that all members of the Nominating and Governance Committee are independent under the rules of The NASDAQ Stock Market.

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

- high standard of personal and professional ethics, integrity and values;
- training, experience and ability at making and overseeing policy in business, government and/or education sectors;
- willingness and ability to keep an open mind when considering matters affecting interests of us and our constituents;
- willingness and ability to devote the time and effort required to effectively fulfill the duties and responsibilities related to the Board and its committees;
- willingness and ability to serve on the Board for multiple terms, if nominated and elected, to enable development of a deeper understanding of our business affairs;
- willingness not to engage in activities or interests that may create a conflict of interest with a director's responsibilities and duties to us and our constituents; and
- willingness to act in the best interests of us and our constituents, and objectively assess Board, committee and management performances.

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

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

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

### Number of Meetings

The Board held a total of 12 meetings in 2015. Our Audit Committee held 7 meetings, our Compensation Committee held 3 meetings, and our Nominating and Governance Committee held 2 meetings in 2015. With the exception of Winston Xu, each director attended at least 75% of the aggregate of the total number of meetings of the Board and the Board committees on which he served.

### Board Member Attendance at Annual Stockholder Meetings

Although we do not have a formal policy regarding director attendance at annual stockholder meetings, directors are encouraged to attend these annual meetings absent extenuating circumstances. Our 2015 annual meeting was attended by one director serving at the time.

### Stockholder Nominations

In accordance with our Bylaws, a stockholder wishing to nominate a director for election at an annual or special meeting of stockholders must timely submit a written proposal of nomination to us at our executive offices. To be timely, a written proposal of nomination for an annual meeting of stockholders must be received at least 90 calendar days but no more than 120 calendar days before the first anniversary of the date on which we held our annual meeting of stockholders in the immediately preceding year; provided, however, that in the event that the date of the annual meeting is advanced or delayed more than 30 calendar days

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from the anniversary of the annual meeting of stockholders in the immediately preceding year, the written proposal must be received: (i) at least 90 calendar days but no more than 120 calendar days prior to the date of the annual meeting; or (ii) no more than 10 days after the date we first publicly announce the date of the annual meeting. A written proposal of nomination for a special meeting of stockholders must be received no earlier than 120 calendar days prior to the date of the special meeting nor any later than the later of: (i) 90 calendar days prior to the date of the special meeting; and (ii) 10 days after the date we first publicly announce the date of the special meeting.

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

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

Director Compensation

In 2015, our independent directors each received an annual cash retainer of \$20,000 and restricted stock units valued at \$35,000 based on the closing price of our common stock on December 31, 2014. In addition, an independent director received: (1) for serving as a Board committee member, restricted stock unit awards valued at \$10,000 based on the closing price of our common stock as of December 31, 2014; (2) for serving as a committee chairman, restricted stock unit awards valued at \$20,000 based on the closing price of our common stock on December 31, 2014; and (3) for serving as chairman of the Board, additional cash compensation of \$100,000 and restricted stock unit awards valued at \$40,000 based on the closing price of our common stock on December 31, 2014.

The following Director Compensation Table summarizes the compensation of each of our directors for services rendered to us during the year ended December 31, 2015:

2015 Director Compensation Table

Name	Fees Earned or Paid in Cash (\$)	Stock Awards (\$)(1)	All Other Comp (\$)	Total (\$)
Amit Kumar	120,000	114,999	—	234,999
Kim J. Huntley	20,000	74,998	—	94,998
G. Thomas Marsh	20,000	74,998	—	94,998
Victor Lee	—	—	—	—
Xu Biao(2)	—	—	—	—

(1) Represents the aggregate grant date fair value of restricted stock unit awards computed in accordance with FASB ASC Topic 718 for awards of stock granted during the year ended December 31, 2015.

(2) Mr. Biao received compensation in 2015 for services provided to the Company's Asian subsidiary. See "Related Party Transactions" below.

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

Code of Ethics

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

**Communication with the Board of Directors**

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

**Item 11. Executive Compensation****Compensation of Executive Officers in 2015**

The following Summary Compensation Table sets forth certain information regarding the compensation of our principal executive officers for services rendered in all capacities to us during the years ended December 31, 2015 and 2014.

**Summary Compensation Table**

Name and Principal Position	Year	Salary (\$)	Bonus (\$)	Stock Awards (\$)(1)	Option Awards (\$)(2)	All Other Comp(\$)(4)	Total (\$)
Victor Lee—Chief Executive Officer	2015	311,589	—	—	245,647	—	557,236
	2014	213,462	—	—	85,200	—	298,662
William Gregorak - Former CFO(3)	2015	86,894	—	—	37,850	124,890	249,634
	2014	185,000	—	—	15,870	—	200,870

(1) Represents the aggregate grant date fair value computed in accordance with FASB ASC Topic 718 for awards of stock awards granted during the years ended December 31, 2015 and 2014.

(2) Represents the aggregate grant date fair value computed in accordance with FASB ASC Topic 718 for options granted during the years ended December 31, 2015 and 2014.

(3) William Gregorak resigned as CFO effective May 13, 2015.

(4) Includes severance and COBRA insurance premiums through December 31, 2015.

**Executive Employment Agreements**

On April 4, 2014, we entered into an employment agreement with Mr. Lee. The employment agreement provides that Mr. Lee will receive an annual base salary of \$300,000, subject to annual adjustments as determined by our board. Mr. Lee will also be eligible for an annual bonus of up to 100% of his base salary as determined at the sole discretion of our board or compensation committee. Under this agreement, if the Company terminates Mr. Lee without cause, Mr. Lee is entitled to receive twelve months of base salary from the date of termination. If Mr. Lee is terminated without cause, an additional portion of his stock options will become vested. In addition, the employment agreement provides that Mr. Lee is eligible to participate in the Company's standard benefit plans and programs.

As provided in the employment agreement, Mr. Lee was granted stock options to purchase 20,000 shares of the Company's common stock. These options vest in four equal annual installments on the first, second, third and fourth anniversaries of the employment agreement date, with an exercise price of \$5.50 per share. These options expire on April 4, 2024.

The following table sets forth information concerning the outstanding equity awards granted to the named executive officers as of December 31, 2015.

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## Outstanding Equity Awards at Fiscal Year-End 2015

Name	Option Awards Number of Securities Underlying Unexercised Options(#)		Option Exercise Price(\$/sh)	Option Expiration Date	Stock Awards Number of Shares or Market Value of Shares or Units of Stock That Have Not Vested	
	Exercisable	Unexercisable			Units of Stock That Have Not Vested	Units of Stock That Have Not Vested
Victor Lee(1)	20,000	—	\$6.50	3/1/2023	—	—
	5,000	15,000	\$5.50	4/4/2024	—	—
	—	200,000	\$1.01	2/11/2025	—	—
	—	200,000	\$0.61	6/18/2025	—	—
William Gregorak(2)	—	—	\$—	—	—	—

Vesting dates of securities underlying unexercised options and stock awards not yet vested as of December 31, 2015:

\$6.50 options - 10,000 vested on 3/1/14 and 10,000 vested on 3/1/15. \$5.50 Options - 5,000 vested on 4/4/15, 5,000 vesting on 4/4/16, 5,000 vesting on 4/4/17, and 5,000 vesting on 4/4/18. \$1.01 Options - 100,000 vesting on 2/11/16 and 100,000 vesting on 2/11/17. \$0.61 Options - 100,000 vesting on 6/18/17 and 100,000 vesting on 6/18/19

(2) William Gregorak resigned as CFO effective May 13, 2015

#### Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters Securities Authorized for Issuance under Equity Compensation Plans

The following table sets forth information as of December 31, 2015 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	1,124,786	\$ 3.37	5,441,724

(1) This column does not include 354,982 restricted stock awards or units.

#### SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The following table shows information regarding the beneficial ownership of our common stock by our directors, executive officers, and greater than 5% beneficial owners as of March 9, 2016.

Beneficial ownership is determined in accordance with the rules of the SEC and generally includes any shares over which a person exercises sole or shared voting or investment power and all shares issuable upon exercise of options or the vesting of restricted stock within 60 days of March 9, 2016. For purposes of calculating the percentage of our common stock beneficially owned, the number of shares of our common stock includes 216,406,974 shares of our common stock outstanding as of March 9, 2016.

Unless otherwise indicated, each of the stockholders listed below has sole voting and investment power with respect to the shares beneficially owned. The address for each director or named executive officer is c/o Ascent Solar

Technologies, Inc., 12300 North Grant Street, Thornton, Colorado 80241.



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Name of Beneficial Owner	No. of Shares Beneficially Owned	Percentage	
5% Stockholders:			
Seng Wei Seow(1)	23,778,347	9.9	%
Officers and Directors:			
Victor Lee(2)	130,000	*	
Amit Kumar, Ph.D.(3)	359,972	*	
Kim J. Huntley(4)	214,728	*	
G. Thomas Marsh(5)	236,650	*	
Xu Biao(6)	50,000	*	
All directors and executive officers as a group (5 persons)	991,350	0.5	%

\* Less than 1.0%.

The address for Seng Wei Seow is 17 Jalan Haji Salam, Singapore 468784. Consists of 1,134,831 shares of common stock owned as of March 9, 2016. Also includes additional shares of common stock issuable as of such date (i) upon conversion of shares of Series A preferred stock, (ii) upon exercise of common stock warrants held by Seow and (iii) upon conversion of a secured convertible promissory note held by Seow. The Series A preferred stock, common stock warrants and Note Purchase Agreement contain conversion, exercise and issuance limitations providing that

1. Seow may not be issued shares of common stock (whether by means of conversion of Series A preferred stock, exercise of warrants, conversion under the promissory note or otherwise) if after giving effect to such issuance Seow would beneficially own in excess of 9.9% of the Company's outstanding shares of common stock. Does not include any other shares of common stock that may be issued in the future in connection with the Series A preferred stock, common stock warrants and promissory note that could be issued to Seow if such 9.9% limitation does not apply.

2. Does not include securities held by TFG Radiant Investment Group Ltd., our largest stockholder. Mr. Lee is managing director of Tertius Financial Group Pte Ltd. a 50% owner of TFG Radiant Investment Group Ltd., and disclaims beneficial ownership of our securities held by TFG Radiant Investment Group Ltd. Does not include 310,000 options to purchase common stock issued but not vested as of or within 60 days of March 9, 2016.

3. Does not include 566,664 shares of restricted stock issued but not vested as of or within 60 days of March 9, 2016 that will require shareholder approval.

4. Does not include 300,000 shares of restricted stock issued but not vested as of or within 60 days of March 9, 2016 that will require shareholder approval.

5. Does not include 300,000 shares of restricted stock issued but not vested as of or within 60 days of March 9, 2016 that will require shareholder approval.

6. Does not include securities held by TFG Radiant Investment Group Ltd., our largest stockholder. Mr. Xu is an investor in TFG Radiant Investment Group Ltd., and disclaims beneficial ownership of our securities held by TFG Radiant Investment Group Ltd. Does not include 50,000 options to purchase common stock issued but not vested as of or within 60 days of March 9, 2016.

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

#### RELATED PARTY TRANSACTIONS

#### Transactions Involving TFG Radiant

On August 12, 2011, we entered into a strategic alliance with TFG Radiant and its affiliates. TFG Radiant made an initial \$7.36 million equity investment in our common stock and received an option to acquire an additional 950,000 shares of our common stock at an exercise price of \$15.50 per share. This option expired unexercised in February, 2014. In connection with the transaction, we entered into a stockholders agreement with TFG Radiant (the "Prior Stockholders Agreement"), which granted TFG Radiant the right to designate a member of our Board of Directors for election so long as TFG Radiant holds at least 15% of our common stock. On November 3, 2011, we appointed Mr. Victor Lee as a member of our Board of Directors and a designated representative of TFG Radiant.

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On March 30, 2012, TFG Radiant purchased all of the Ascent Solar common shares then owned by Norsk Hydro (previously our largest shareholder), or 806,739 shares, for \$4 million, or approximately \$5.00 per share.

In April 2012, we appointed the Chairman of TFG Radiant, Mr. Winston Xu (aka Xu Biao), as a member of our Board of Directors.

Mr. Winston Xu, a director of the Company and an affiliate of TFG Radiant, serves as a director of the Company's Asia subsidiary and provides a variety of services to our Asia subsidiary. In 2015, we paid Mr. Xu \$65,556 for services provided to our Asia subsidiary.

On April 6, 2015, the Company entered into a securities purchase agreement with TFG Radiant for a private placement of a total of 1,000,000 shares of the Company's common stock which resulted in gross proceeds of approximately \$1 million to the Company. The transaction closed on April 17, 2015.

On June 10, 2015, the Company entered into a securities purchase agreement with TFG Radiant for a private placement of a total of 1,000,000 shares of the Company's common stock which resulted in gross proceeds of approximately \$1 million to the Company. The transaction closed on July 10, 2015.

TFG Radiant owns approximately 3% of our outstanding common stock as of March 9, 2016.

Amended and Restated Stockholders Agreement

We previously entered into the Prior Stockholders Agreement in connection with TFG Radiant's prior investment in our common stock. On December 30, 2011, we entered into an Amended and Restated Stockholders Agreement with TFG Radiant (the "Amended and Restated Stockholders Agreement"). The Amended and Restated Stockholders Agreement became effective March 30, 2012 and has replaced and superseded the Prior Stockholders Agreement.

Among other things, the Amended and Restated Stockholders Agreement provides that:

- a. TFG Radiant may designate a second representative for election to our Board at any time as TFG Radiant beneficially owns 25% of our outstanding common stock;
- b. TFG Radiant may designate a third representative for election to our Board at any time as TFG Radiant beneficially owns 45% of our outstanding common stock; and
- c. TFG Radiant will vote its shares of our common stock for the election of all persons nominated for election to our Board if such nominees (i) have been approved by a majority of our Board and (ii) such board approval included the affirmative vote of at least one TFG Radiant representative on the Board;

Pursuant to the terms of the Amended and Restated Stockholders Agreement, on April 16, 2012, Mr. Xu Biao of TFG Radiant was appointed to our Board.

Joint Development Agreement

We entered into a Joint Development Agreement (the "Joint Development Agreement") with TFG Radiant dated August 12, 2011 in connection with TFG Radiant's prior investment in us. Under the terms of the Joint Development Agreement:

- a. The parties will collaborate in order to allow TFG Radiant to (i) develop and commercialize facilities ("Fabs") that manufacture Copper Indium Gallium diSelenide ("CIGS") thin-film photovoltaic modules ("CIGS PV") in an agreed upon territory in East Asia, and (ii) sell CIGS PV in such territory.
- b. TFG Radiant agrees to pay to us certain specified non-recurring engineering funding.
- c. We shall have the option to require TFG Radiant to purchase CIGS PV produced by us, subject to certain minimum volume and price thresholds.

TFG Radiant has been granted an exclusive license to intellectual property owned by us or developed by us in connection with constructing Fabs and selling CIGS PVs in the territory. In order to maintain exclusivity in the territory, TFG Radiant must achieve certain specified performance metrics.

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- e. TFG Radiant will pay to us a series of milestones payments in the event TFG Radiant (i) sells and ships certain quantities of CIGS PV and (ii) achieves certain target costs of production.
- f. TFG Radiant will pay to us a royalty percentage based on net sales of the CIGS PV, a portion of which can be converted into an ownership interest in the Fab responsible for such production.
- g. TFG Radiant will pay to us a license fee at the time of commissioning for each TFG Radiant Fab.

During 2015 we did not receive any funds pursuant to the Joint Development Agreement from TFG Radiant.

The Joint Development Agreement was filed as an exhibit to our Quarterly Report on Form 10-Q filed on November 10, 2011 and is subject to a confidential treatment order of the SEC through December 31, 2020.

## Supply Agreement

In June 2012, we entered into a supply agreement with TFG Radiant. Under the supply agreement TFG Radiant is a distributor of our consumer products in Asia. During the year ended December 31, 2015 and 2014, we recognized revenue in the amount of \$0 and \$8,000, respectively, for products sold to TFG Radiant under the supply agreement.

## Contract Manufacturing Agreement

In June 2012, we entered into a contract manufacturing agreement with TFG Radiant. Under the terms of the contract manufacturing agreement TFG Radiant oversees certain aspects of the contract manufacturing process related to our EnerPlex™ line of consumer products. We compensate TFG Radiant for acting as general contractor in the contract manufacturing process. During the year ended December 31, 2015 we made no disbursements to TFG Radiant. During the year ended December 31, 2014 we made disbursements to TFG Radiant in the amount of \$518,000. Included within these 2014 disbursements is \$200,000 for consulting fees and \$318,000 for finished goods received and deposits for work-in-process. As of December 31, 2015 and 2014, we had \$0 in deposits with TFG Radiant.

## Consulting Agreement

In December 2012, we entered into a services agreement with TGF Radiant for product design, product development and manufacturing coordination activities provided by TFG Radiant to us in connection with our line of consumer electronics products. The services agreement has a one year term initially, and the services agreement may be terminated by either party upon 10 days prior written notice. This consulting services agreement was terminated effective March 31, 2014.

## Policies and Procedures with Respect to Transactions with Related Persons

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

## Director Independence

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

## Section 16(a) Beneficial Ownership Reporting Compliance

Section 16(a) of the Exchange Act requires our directors, officers, and persons that own more than 10 percent of a registered class of our equity securities to file reports of ownership and changes in ownership with the SEC. Officers, directors, and greater than 10 percent stockholders are required by SEC regulations to furnish us with copies of all Section 16(a) forms they file.

Based solely upon our review of the copies of such forms received by us during the fiscal year ended December 31, 2015, we believe that each person who, at any time during such fiscal year, was a director, officer, or beneficial owner of more than 10 percent of our common stock complied with all Section 16(a) filing requirements in a timely manner during such fiscal year.

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## Item 14. Principal Accounting Fees and Services

## PRINCIPAL ACCOUNTANTS

## Principal Accounting Fees and Services

Fees for audit and related services by our accounting firm, Hein & Associates LLP, for the years ended December 31, 2015 and 2014 were as follows:

	2015	2014
Audit fees	\$208,000	\$190,000
Audit related fees	16,000	16,000
Total audit and audit related fees	\$224,000	\$206,000
Tax fees	2,500	—
All other fees	—	—
Total Fees	\$226,500	\$206,000

Audit fees for Hein & Associates LLP for fiscal year 2015 and 2014 represent aggregate fees during the audit of the financial statements, interim reviews of the quarterly financial statements and consents and comfort letters.

## Audit Committee Pre-Approval Policies and Procedures

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

## PART IV

## Item 15. Exhibits and Financial Statement Schedules

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

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

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

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

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

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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 11th day of March, 2016.

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 acting Principal Financial Officer)	March 11, 2016
/S/ AMIT KUMAR Amit Kumar, Ph.D.	Chairman of the Board of Directors	March 11, 2016
/S/ WINSTON XU Xu Biao (aka Winston Xu)	Director	March 11, 2016
G. Thomas Marsh	Director	March 11, 2016
/S/ KIM J. HUNTLEY Kim J. Huntley	Director	March 11, 2016



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Ascent Solar Technologies, Inc.  
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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors  
Ascent Solar Technologies, Inc.  
Thornton, Colorado

We have audited the accompanying consolidated balance sheets of Ascent Solar Technologies, Inc. and subsidiaries as of December 31, 2015 and 2014, and the related consolidated statements of operations, stockholders' equity and cash flows for the years 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 audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audits 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 audits 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 audits provide 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, 2015 and 2014, and the results of their operations and their cash flows for the years 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, 2016. 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  
March 11, 2016

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## ASCENT SOLAR TECHNOLOGIES, INC.

## CONSOLIDATED BALANCE SHEETS

	December 31, 2015	December 31, 2014
<b>ASSETS</b>		
Current Assets:		
Cash and cash equivalents	\$326,217	\$3,316,576
Restricted cash - short term	—	24,000,000
Trade receivables, net	1,992,885	2,782,105
Inventories	4,272,380	2,427,212
Prepaid expenses and other current assets	1,394,780	2,660,384
Total current assets	7,986,262	35,186,277
Property, Plant and Equipment:	37,575,736	37,598,452
Less accumulated depreciation and amortization	(28,484,708 )	(22,941,264 )
	9,091,028	14,657,188
Other Assets:		
Restricted cash - long term	—	4,001,880
Patents, net of amortization of \$169,626 and \$122,731, respectively	1,567,567	1,305,895
Investment in joint venture	—	320,000
Other non-current assets	105,313	449,142
	1,672,880	6,076,917
Total Assets	\$18,750,170	\$55,920,382
<b>LIABILITIES AND STOCKHOLDERS' EQUITY</b>		
Current Liabilities:		
Accounts payable	\$3,625,322	\$1,569,746
Accrued expenses	1,713,935	2,934,246
Current portion of long-term debt	348,722	302,210
Current portion of convertible note payable, net of discount of \$22,484 and \$7,607,492, respectively	30,036	364,093
September 2015 fixed rate convertible notes, net of discount of \$1,237,500 and \$0, respectively	811,773	—
Promissory note	500,493	—
Current portion of litigation settlement	541,255	493,732
Series D preferred stock, net of discount of \$0 and \$1,194,222, respectively	—	224,778
Series E preferred stock, net of discount of \$1,231,737 and \$0, respectively	1,090,847	—
Short term embedded derivative liabilities	613,834	4,427,011
Make-whole dividend liability	849,560	849,560
Total current liabilities	10,125,777	11,165,376
Accrued Litigation Settlement, net of current portion	339,505	880,760
Long-Term Debt	5,442,194	5,764,965
Long-Term Convertible Note, net of discount \$0 and \$22,930,946, respectively	—	1,097,469
Warrant Liability	—	15,866,667
Long Term Embedded Derivative Liabilities	—	13,344,155
Accrued Warranty Liability	264,000	136,000
Commitments and Contingencies (Notes 4 & 17)		
Stockholders' Equity:		

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Series A preferred stock, \$.0001 par value; 750,000 shares authorized and issued; 212,390 and 212,390 shares outstanding as of December 31, 2015 and December 31, 2014, respectively (\$2,548,680 Liquidation Preference)	21	21
Common stock, \$0.0001 par value, 450,000,000 shares authorized; 155,196,865 and 18,211,104 shares issued and outstanding, respectively	15,520	1,821
Additional paid in capital	347,644,947	306,947,144
Accumulated deficit	(345,081,794 )	(299,283,996 )
Total stockholders' equity	2,578,694	7,664,990
Total Liabilities and Stockholders' Equity	\$18,750,170	\$55,920,382

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

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## ASCENT SOLAR TECHNOLOGIES, INC.

## CONSOLIDATED STATEMENTS OF OPERATIONS

	For the Years Ended December 31,	
	2015	2014
Revenues*	6,536,992	5,335,545
Costs and Expenses		
Cost of revenues (exclusive of depreciation shown below)	9,562,528	—
Research, development and manufacturing operations (exclusive of depreciation shown below)	6,711,813	18,791,140
Selling, general and administrative (exclusive of depreciation shown below)	12,363,037	14,118,508
Depreciation and amortization	5,633,428	5,960,843
Impairment loss	12,570	324,031
Total Costs and Expenses	34,283,376	39,194,522
Loss from Operations	(27,746,384	) (33,858,977
Other Income/(Expense)		
Other Income/(Expense), net	(60,294	) (297,143
Interest Expense	(26,549,098	) (4,109,272
Deemed interest expense on warrant liability	(909,092	) (4,037,517
Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net	9,467,070	(1,051,540
Total Other Income/(Expense)	(18,051,414	) (9,495,472
Net Loss	\$(45,797,798	) \$(43,354,449
Deemed (non-cash) dividends on preferred stock and accretion of warrants	—	(8,087,500
Net Loss applicable to common stockholders	\$(45,797,798	) \$(51,441,949
Net Loss Per Share (Basic and diluted)	\$(0.86	) \$(4.85
Weighted Average Common Shares Outstanding (Basic and diluted)	53,475,729	10,598,502

\* Includes related party revenue of \$0 and \$8,050 for the years ended December 31, 2015 and 2014, respectively. See Note 16.

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

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## ASCENT SOLAR TECHNOLOGIES, INC.

## CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY

	Common Stock		Series A Preferred Stock		Series B-1 Preferred Stock	Series C Preferred Stock	Additional Paid-in Capital	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount	Shares	Amount	Shares	Amount	Amount		
Balance, December 31, 2013	6,174,853	\$617	362,390	\$36	350	\$—	\$263,275,563	\$(247,842,047)	\$15,434,169
Proceeds from private placement:	4,315,618	432	—	—	—	—	—11,959,513	—	11,959,945
Common stock									
Conversion of Series A Preferred Shares	254,075	25	(150,000)	(15)	—	—	—572,424	—	572,434
Proceeds from issuance of Series B Preferred Stock	—	—	—	—	500	—	—5,000,000	—	5,000,000
Conversion of Series B Preferred Shares	1,977,811	198	—	—	(850)	—	—7,037,299	—	7,037,497
Proceeds from issuance of Series C Preferred Stock	—	—	—	—	—	—600	—6,000,000	—	6,000,000
Issuance of Preferred C Penalty Shares	—	—	—	—	—	—30	—300,000	—	300,000
Cost of Series C Preferred Share issuance	—	—	—	—	—	—	—(53,362)	) —	(53,362)
Conversion of Series C Preferred Shares	3,482,909	348	—	—	—	—(630)	—8,803,910	—	8,804,258
Conversion of Series D Preferred Shares & Dividends	1,696,136	170	—	—	—	—	—2,856,532	—	2,856,702

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Interest Expense paid with Common stock	180,499	18	—	—	—	—	—266,405	—	266,423
Issuance of Restricted Stock	51,425	5	—	—	—	—	—(5	) —	—
Common Stock Issued to Placement Agent	77,778	8	—	—	—	—	—94,548	—	94,556
Stock based compensation	—	—	—	—	—	—	—834,317	—	834,317
Deemed dividends on preferred stock and accretion of warrants	—	—	—	—	—	—	—	(8,087,500 )	(8,087,500 )
Net Loss	—	—	—	—	—	—	—	(43,354,449 )	(43,354,449 )
Balance, December 31, 2014	18,211,104	\$1,821	212,390	\$21	—	\$—	\$306,947,144	\$(299,283,996)	\$7,664,990

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

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## ASCENT SOLAR TECHNOLOGIES, INC.

## CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY

	Common Stock		Series A Preferred Stock		Series B-1 Preferred	Series C Preferred	Additional Paid-In Stock Capital	Accumulated Deficit	Total Stockholders' Equity	
	Shares	Amount	Shares	Amount	Shares	Shares				
Balance, December 31, 2014	18,211,104	\$ 1,821	212,390	\$ 21	—	—	\$—	\$306,947,144	\$(299,283,996)	\$ 7,664,990
Proceeds from private placement:	2,000,000	200	—	—	—	—	1,999,800	—	—	2,000,000
Common stock										
Conversion of Series D Preferred Stock into Common Shares	1,465,972	147	—	—	—	—	813,845	—	—	813,992
Conversion of Series D-1 Preferred Stock into Common Shares	2,305,824	231	—	—	—	—	3,169,118	—	—	3,169,349
Conversion of Convertible Notes into Common Shares	95,517,222	9,552	—	—	—	—	25,548,368	—	—	25,557,920
Conversion of Series E Preferred Stock into Common Shares	4,957,585	496	—	—	—	—	745,420	—	—	745,916
Common Shares sold pursuant to the Committed Equity Line	16,850,923	1,685	—	—	—	—	1,998,315	—	—	2,000,000
Conversion of Right Shares into Common Shares	8,300,000	830	—	—	—	—	2,904,170	—	—	2,905,000
	3,823,791	382	—	—	—	—	1,034,153	—	—	1,034,535



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Interest and Dividends paid with Common Stock											
Issuance of Restricted Stock	258,365	26	—	—	—	—	—	(26	)	—	—
Common Stock Issued to Placement Agent	132,191	13	—	—	—	—	—	108,967	—	—	108,980
Commitment Shares	860,000	86	—	—	—	—	—	53,914	—	—	54,000
Common shares issued in payment of consulting expenses	513,888	51	—	—	—	—	—	89,948	—	—	89,999
Stock based compensation	—	—	—	—	—	—	—	856,811	—	—	856,811
Beneficial Conversion Feature related to the September 2015 Convertible Notes	—	—	—	—	—	—	—	1,375,000	—	—	1,375,000
Net Loss	—	—	—	—	—	—	—	—	(45,797,798	)	(45,797,798)
Balance, December 31, 2015	155,196,865	\$15,520	212,390	\$21	—	\$—	—	\$—	\$347,644,947	\$(345,081,794)	\$2,578,694

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

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## ASCENT SOLAR TECHNOLOGIES, INC.

## CONSOLIDATED STATEMENTS OF CASH FLOWS

	For the Years Ended	
	December 31,	
	2015	2014
Operating Activities:		
Net loss	\$(45,797,798 )	\$(43,354,449 )
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	5,633,428	5,960,843
Stock based compensation	856,811	834,317
Common stock issued for services	89,999	—
Amortization of financing costs	362,996	51,689
Impairment loss	12,570	324,031
Non-cash interest expense	1,439,425	266,423
Amortization of debt discount	23,968,539	3,267,340
Non-cash Preferred C Penalty Shares	—	300,000
Loss on Note Receivable	99,000	—
Loss on Joint Venture	128,709	—
Bad debt expense	77,524	32,566
Accrued litigation settlement	(493,732 )	(325,508 )
Deemed interest expense on warrant liability	909,092	4,037,517
Change in fair value of derivatives and loss on extinguishment of liabilities, net	(9,467,070 )	1,051,540
Changes in operating assets and liabilities:		
Accounts receivable	711,696	(2,356,595 )
Related party receivables and deposits	—	21,122
Inventories	(1,845,168 )	(539,600 )
Prepaid expenses and other current assets	248,781	(387,809 )
Accounts payable	2,055,575	1,126,992
Accrued expenses	(1,220,311 )	1,516,377
Warranty reserve	128,000	88,063
Net cash used in operating activities	(22,101,934 )	(28,085,141 )
Investing Activities:		
Purchase of property, plant and equipment	(29,194 )	(134,727 )
Note Receivable	—	(171,000 )
Investment in Joint Venture	191,291	(320,000 )
Interest income on restricted cash	(49,446 )	—
Patent activity costs	(308,567 )	(465,721 )
Net cash used in investing activities	(195,916 )	(1,091,448 )
Financing Activities:		
Payment of debt financing costs	(466,250 )	(447,645 )
Proceeds from Promissory Note	500,000	—
Repayment of debt	(276,259 )	(282,960 )
Repayment of convertible notes	(1,000,000 )	—
Proceeds from convertible notes	2,000,000	32,000,000
Restricted cash	9,250,000	(28,001,880 )
Proceeds from Committed Equity Line	2,000,000	—
Proceeds from issuance of stock and warrants	7,300,000	25,907,495
Net cash provided by financing activities	19,307,491	29,175,010

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Net change in cash and cash equivalents	(2,990,359	) (1,579	)
Cash and cash equivalents at beginning of period	3,316,576	3,318,155	
Cash and cash equivalents at end of period	\$326,217	\$3,316,576	
Supplemental Cash Flow Information:			
Cash paid for interest	\$477,354	\$519,014	
Non-Cash Transactions:			
Non-cash conversions of preferred stock and convertible notes to equity	\$19,988,994	\$16,278,954	
Make-whole provision on convertible preferred stock	\$—	\$8,087,500	

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

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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 producing consumer oriented products focusing on charging mobile devices powered by or enhanced by the Company's solar modules. Products in these markets are priced based on the overall product value proposition rather than a commodity-style price per watt basis. The Company continues to develop new consumer products and has adjusted utilization of its equipment to meet near term sales forecasts.

Reverse Stock Split

On August 26, 2014, 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-ten (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 ten 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, 2015 and December 31, 2014, and the results of operations for the year ended December 31, 2015 and 2014. 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 Company's activities from inception through December 31, 2014 consisted substantially of raising capital, research and development, establishment and development of the Company's production plant, product development and establishing sales channels for its line of consumer products which is sold under the EnerPlex™ brand. Revenues from inception through December 31, 2014 had been primarily generated from the Company's governmental research and development contracts until EnerPlex branded products began to sell in higher volumes in 2014. During this time period the Company's primary focus was not generating significant revenue, and thus cost of revenue was not considered a relevant number due to the development nature of the Company. As such, the majority of the Company's costs were considered to be research and development costs from inception through December 31, 2014. Beginning in 2015, due to the success of EnerPlex branded products, the Company's primary focus going forward is to build on the

Company's past results and to significantly increase our revenues. As the Company's primary focus is increasing revenues by utilizing and expanding the sales channels established during prior years, the Company has determined that cost of revenue is a relevant number going forward. As such, the Company has included a Cost of revenues line item in the Consolidated Statements of Operations for the year ended December 31, 2015.

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**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.

**Restricted Cash:** Cash and cash equivalents that are restricted as to withdrawal or use under the terms of the November 2014 Purchase Agreement are presented as restricted cash separate from cash and cash equivalents on our balance sheet.

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

Level 1 - Quoted prices in active markets for identical assets or liabilities.

Level 2 - Inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.

Level 3 - Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities

Certain long-lived assets and current liabilities have been measured at fair value on a recurring and non-recurring basis. See Note 6. Property, Plant and Equipment, Note 9. Convertible Note and Series D Preferred Stock, Note 11. Series E Preferred Stock, and Note 12. Make-whole Dividend Liability. The carrying amount of our long term debt outstanding approximates fair value because our current borrowing rate does not materially differ from market rates for similar bank borrowings. The carrying value for cash and cash equivalents, restricted cash, accounts receivable, accounts payable, accrued expenses and other assets and liabilities approximate their fair values due to their short maturities.

**Related Party Transactions:** The Company is party to several operating agreements, including a Joint Development Agreement, a Supply Agreement, a Contract Manufacturing Agreement, and a Services Agreement with TFG Radiant Investment Group Ltd. and its affiliates (“TFG Radiant”), which is also the Company's largest shareholder. Accounting for transactions under these agreements is consistent with the Company's other significant accounting policies.

**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, 2015 and 2014 and were recorded in “Other Income/(Expense)” in the Consolidated Statements of Operations.

**Revenue Recognition:**

**Product revenue -** The Company generated product revenues of \$6,205,000 for the year ended December 31, 2015.

Product revenue is generated from commercial sales of flexible PV modules and PV integrated consumer electronics, non-PV integrated power banks and associated accessories. Products are sold through the Company's own e-commerce website, online retailers, direct to retailers and indirectly to retailers through distributors. Revenue is recognized as products are shipped or delivered and title has transferred to the customer. In certain instances, the Company has agreed to refund a portion of the purchase price to customers if the Company decreases its standard retail price. The Company estimates the effect of this price protection and records the difference as a reduction of revenue at the time of sale. Estimated costs of returns and allowances and discounts are accrued as a reduction to sales when revenue is recognized. See Marketing and Advertising Costs below for accounting treatment related to cooperative advertising programs.

**Government contracts revenue -** Revenue from governmental research and development contracts is generated under terms that are cost plus fee or firm fixed price. Revenue from cost plus fee contracts is recognized as costs are incurred on the basis of direct costs plus allowable indirect costs and an allocable portion of the fixed fee. Revenue from firm

fixed price contracts is recognized under the percentage-of-completion method of accounting, with costs and estimated profits included in contract revenue as work is performed. If actual and estimated costs to complete a contract indicate a loss, provision is made currently for the loss anticipated on the contract.

Marketing and Advertising Costs: The Company advertises in print, television, online and through social media. The Company will also authorize customers to run advertising campaigns on its behalf through various media outlets. Marketing and

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advertising costs are expensed as incurred. Marketing and advertising expenses were \$3,369,000 and \$4,756,000 for the years ended December 31, 2015 and 2014, respectively.

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

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

**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 it is probable that the receivable will not be recovered. As of December 31, 2015 and 2014, the Company had an allowance for doubtful accounts of \$60,347 and \$32,566, respectively.

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

**Convertible Preferred Stock:** During the second and third quarters of 2013, the Company issued Series A preferred stock and warrants. Upon issuance, the Series A preferred stock was evaluated under FASB ASC 480, "Distinguishing Liabilities from Equity" and it was determined the Series A preferred stock was not within the scope of ASC 480; therefore, the Series A preferred stock was not considered a liability under ASC 480. The warrants associated with the Series A preferred stock offering were also not considered a liability as assessed under ASC 480.

During the fourth quarter of 2013, the Company issued Series B preferred stock. Upon issuance, the Series B preferred stock was evaluated under FASB ASC 480, "Distinguishing Liabilities from Equity" and it was determined the Series B preferred stock was not within the scope of ASC 480; therefore, the Series B preferred stock was not considered a liability under ASC 480.

During the second quarter of 2014, the Company issued Series C preferred stock. Upon issuance, the Series C preferred stock was evaluated under FASB ASC 480, "Distinguishing Liabilities from Equity" and it was determined the Series C preferred stock was not within the scope of ASC 480; therefore, the Series C preferred stock was not considered a liability under ASC 480.

During the fourth quarter of 2014, the Company issued Series D preferred stock. Upon issuance, the Series D preferred stock was evaluated under FASB ASC 480, "Distinguishing Liabilities from Equity" and it was determined the Series D preferred stock was within the scope of ASC 480; therefore, the Series D preferred stock was considered a liability under ASC 480. Refer to Note 9 for further information.

During the first quarter of 2015, the Company issued Series D-1 preferred stock. Upon issuance, the Series D-1 preferred stock was evaluated under FASB ASC 480, "Distinguishing Liabilities from Equity" and it was determined the Series D-1 preferred stock was within the scope of ASC 480; therefore, the Series D-1 preferred stock was considered a liability under ASC 480. Refer to Note 9 for further information.



During the fourth quarter of 2015, the Company issued Series E preferred stock. Upon issuance, the Series E preferred stock was evaluated under FASB ASC 480, "Distinguishing Liabilities from Equity" and it was determined the Series E preferred stock was within the scope of ASC 480; therefore, the Series E preferred stock is considered a liability under ASC 480. Refer to Note 11 for further information.

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**Make-whole dividend liability:** The Series A, Series B, and Series C preferred stock issuances include make-whole provisions with variable rate dividends which are indexed to the Company's own stock. The make-whole provisions have attributes of embedded derivatives and were evaluated under ASC 815, "Derivatives and Hedging" ("ASC 815"). The Company believes the Series A, Series B, and Series C preferred stock are considered equity hosts for the purposes of evaluating the make-whole provisions for potential bifurcation. The Series A, Series B, and Series C preferred stock holders may convert to common shares at any time after issuance. Upon conversion, the holders are entitled to a make-whole dividend which is payable in cash or common shares, at the Company's election. The Company concluded the make-whole payments should be characterized as embedded derivatives under ASC 815. The fair value of make-whole dividend liabilities must be evaluated at each period end, with changes recorded as a component of Other Income/(Expense).

**Warrant liability:** Warrants to purchase the Company's common stock with nonstandard antidilution provisions, regardless of the probability or likelihood that may conditionally obligate the issuer to ultimately transfer assets, are classified as liabilities and are recorded at their estimated fair value at each reporting period. Any change in fair value of these warrants is recorded at each reporting period in Other income/(expense) on the Company's statement of operations.

**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, 2015, the Company had \$1,568,000 of net patent costs, of which \$50,000 represents costs net of amortization incurred for awarded patents, and the remaining \$1,518,000 represents costs incurred for patent applications to be filed. During the year ended December 31, 2015, the Company capitalized \$309,000 in patent costs as it worked to secure design rights and trademarks for newly developed products. Amortization expense was \$47,000 and \$39,000 for the years ended December 31, 2015 and 2014, respectively. Amortization expense is expected to remain consistent or increase slightly in future periods.

**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 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, 2015 and 2014, the Company had inventory reserve balances of \$653,000 and \$864,000, respectively. If actual demand and market conditions are less favorable than those estimated by management, additional inventory write downs may be required. During the years ended December 31, 2015 and December 31, 2014, the Company recognized no lower of cost or market adjustments.

**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

**Impairment of Long-lived Assets:** The Company analyzes its long-lived assets (property, plant and equipment) and definitive-lived intangible assets (patents) for impairment, both individually and as a group, whenever events or changes in circumstances indicate the carrying amount of the assets may not be recoverable. Events that might cause impairment would include significant current period operating or cash flow losses associated with the use of a long-lived asset or group of assets combined with a history of such losses, significant changes in the manner of use of assets and significant negative industry or economic trends. An undiscounted cash flow analysis is calculated to

determine if impairment exists. If impairment is determined to exist, any related loss is calculated using the difference between the fair value and the carrying value of the assets. During the years ended December 31, 2015 and 2014, the Company incurred impairments of its manufacturing facilities and equipment in the amounts of \$12,600 and \$324,000, respectively. The impairments incurred in 2015 and 2014 were based on estimates prepared by management.

Net Loss per Common Share: Basic loss per share does not include dilution and is computed by dividing income available to common stockholders by the weighted average number of shares outstanding during the period. Diluted earnings per share reflect the potential securities that could share in the earnings of the Company, similar to fully diluted earnings per share. Common

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stock equivalents outstanding as of December 31, 2015 of approximately 48.8 million shares have been omitted from loss per share because they are anti-dilutive. Common stock equivalents consist of stock options, unvested restricted stock, warrants, preferred stock, preferred stock make-whole dividend liability amounts (assuming the make-whole dividend liability is paid in common stock in lieu of cash), and convertible notes (assuming the amortization payments are paid in common stock in lieu of cash). Net loss per common share was the same for both basic and diluted methods for the periods ended December 31, 2015 and 2014.

**Research, Development and Manufacturing Operations Costs:** Research, development and manufacturing operations expenses were \$6.7 million and \$18.8 million for the years ended December 31, 2015 and 2014, 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.

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

The Company has analyzed filing positions in all of the federal and state jurisdictions where it is required to file income tax returns, as well as all open tax years (2011-2015) in these jurisdictions. The Company believes its income tax filing positions and deductions will be sustained on audit and does not anticipate any adjustments that will result in a material adverse effect on the Company's financial condition, results of operations, or cash flows. Therefore, no reserves for uncertain income tax positions have been recorded.

**Share-Based Compensation:** The Company measures and recognizes compensation expense for all share-based payment awards made to employees, officers, directors, and consultants based on estimated fair values. The value of the portion of the award that is ultimately expected to vest is recognized as expense over the requisite service period in the Company's Statements of Operations. Share-based compensation is based on awards ultimately expected to vest and is reduced for estimated forfeitures. Forfeitures are estimated at the time of grant and revised, as necessary, in subsequent periods if actual forfeitures differ from those estimates. For purposes of determining estimated fair value of share-based payment awards on the date of grant the Company uses the Black-Scholes option-pricing model ("Black-Scholes Model") for option awards. The Black-Scholes Model requires the input of highly subjective assumptions. Because the Company's employee stock options may have characteristics significantly different from those of traded options, and because changes in the subjective input assumptions can materially affect the fair value estimate, in management's opinion, the existing models may not provide a reliable single measure of the fair value of the Company's employee stock options. Management will continue to assess the assumptions and methodologies used to calculate estimated fair value of share-based compensation. Circumstances may change and additional data may become available over time, which result in changes to these assumptions and methodologies, which could materially impact the Company's fair value determination. The Company estimates the fair value of its restricted stock awards as its stock price on the grant date.

The accounting guidance for share-based compensation may be subject to further interpretation and refinement over time. There are significant differences among option valuation models, and this may result in a lack of comparability with other companies that use different models, methods and assumptions. If factors change and the Company employs different assumptions in the accounting for share-based compensation in future periods, or if the Company decides to use a different valuation model, the compensation expense the Company records in the future may differ

significantly from the amount recorded in the current period and could materially affect its loss from operations, net loss and net loss per share.

Reclassifications: Certain reclassifications have been made to the 2014 financial information to conform to the 2015 presentation. Such reclassifications had no effect on the net loss.

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.

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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 is researching whether the adoption of ASU 2014-09 will have a material effect on the Company's consolidated financial statements.

In August 2014, the FASB issued ASU No. 2014-15, Presentation of Financial Statements—Going Concern (Subtopic 205-40): Disclosure of Uncertainties about an Entity's Ability to Continue as a Going Concern. ASU 2014-15 requires management to evaluate, in connection with preparing financial statements for each annual and interim reporting period, whether there are conditions or events, considered in the aggregate, that raise substantial doubt about an entity's ability to continue as a going concern within one year after the date that the financial statements are issued and to provide certain disclosures if it concludes that substantial doubt exists. ASU 2014-15 is effective for all entities for the annual period ending after December 15, 2016, and for annual and interim periods thereafter, with early adoption permitted. The Company has not early adopted ASU 2014-15. The Company is researching whether the adoption of ASU 2014-15 will have a material effect on the Company's consolidated financial statements.

In July 2015, the FASB issued ASU No. 2015-11, Inventory (Topic 330): Simplifying the Measurement of Inventory, which states that inventory should be measured at the lower of cost and net realizable value. Net realizable value is defined as estimated selling price in the ordinary course of business, less reasonably predictable costs of completion, disposal and transportation. This ASU is effective within annual periods beginning on or after December 15, 2016, including interim periods within that reporting period. The Company is currently evaluating the impact, if any, that the adoption of this guidance will have on its 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 is currently evaluating the impact, if any, that the adoption of this guidance will have on its consolidated financial statements.

**NOTE 4. LIQUIDITY AND CONTINUED OPERATIONS**

On November 14, 2014, the Company entered into a securities purchase agreement (the "November 2014 Purchase Agreement") with one institutional and accredited investor (the "Investor"). Pursuant to the terms of the November 2014 Purchase Agreement, the Company sold to the Investor (i) \$3,000,000 (3,000 shares) of Series D Convertible Preferred Stock (the "Series D Preferred Stock"), and (ii) \$32,000,000 original principal amount of senior secured convertible notes (the "Notes"). On September 4, 2015, the Company entered into a Cancellation and Waiver Agreement (the "Cancellation Agreement"), between the Company and the Investor. The Cancellation Agreement was amended on October 8, 2015 and November 22, 2015. Pursuant to the Cancellation Agreement, the Company has agreed to retire all \$21.2 million aggregate principal amount of its currently outstanding Notes. See Note 9 for further information related to the Cancellation Agreement and the subsequent Cancellation Agreement amendments. In February 2015, the Company completed the sale of 2,500 shares of Series D-1 preferred stock in a private placement for gross proceeds of \$2.5 million. The transaction closed on February 25, 2015. See Note 9 for further information.

On April 6, 2015, the Company entered into a securities purchase agreement with TFG Radiant for a private placement of a total of 1,000,000 shares of the Company's common stock which resulted in gross proceeds of approximately \$1 million to the Company. The transaction closed on April 17, 2015.

On June 10, 2015, the Company entered into a securities purchase agreement with TFG Radiant for a private placement of a total of 1,000,000 shares of the Company's common stock which resulted in gross proceeds of approximately \$1 million to the Company. The transaction closed on July 10, 2015.

On September 4, 2015, the Company entered into a note purchase agreement between the Company and two accredited investors (the "Lenders"). Pursuant to the new loan agreement, the Company issued to the Lenders \$1.5 million original

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principal amount of secured subordinated convertible notes on September 4, 2015, and an additional \$0.5 million original principal amount of secured subordinated convertible notes on September 28, 2015. See Note 10 for further information.

On November 4, 2015, the Company entered into a securities purchase agreement with a Private Investor to issue 2,800 shares of Series E Preferred Stock to an investor in exchange for \$2,800,000. See Note 11 for further information.

On November 10, 2015, the Company and the Private Investor entered into a committed equity line purchase agreement (the "CEL"). Under the terms and subject to the conditions of the CEL purchase agreement, at its option the Company has the right to sell to the Private Investor, and the Private Investor is obligated to purchase from the Company, up to \$32.2 million of the Company's common stock, subject to certain limitations, from time to time, over the 36-month period commencing on December 18, 2015, the date that the registration statement was declared effective by the SEC. The remaining availability under the CEL as of December 31, 2015 is \$30.2 million.

Actual sales of shares of common stock to the Private Investor under the CEL purchase agreement will depend on a variety of factors to be determined by the Company from time to time, including, among others, our ability to register shares of common stock with the SEC, market conditions, the trading price of the common stock and determinations by the Company as to the appropriate sources of funding for the Company and its operations.

As of January 27, 2016, the Company is not able to access the CEL because the Company does not have any registered shares available for use in connection with the CEL purchase agreement. The Company is in the process of registering an additional 48,000,000 shares for such purpose with the SEC. If such additional registration statement is declared effective by the SEC and such additional shares become available for use by the Company, the Company's sales of shares pursuant to the CEL purchase agreement during 2016 would be limited to such 48,000,000 shares. The Company's use of the CEL in 2017 and beyond would require, among other things, the Company to file additional registration statements in the future that cover additional shares and have such registration statements declared effective. The Company would also need to maintain the effectiveness of such additional registration statements. The Company has continued PV production at its manufacturing facility. The Company does not expect sales revenue and cash flows will be sufficient to support operations and cash requirements until it has fully implemented its 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 2015 the Company used \$22.1 million in cash for operations, or an average of \$5.5 million per quarter. During the fourth quarter of 2015 the Company used \$4.6 million in cash for operations. The Company's primary significant long term obligation consists of a note payable of \$5.8 million to a financial institution secured by a mortgage on its headquarters and manufacturing building in Thornton, Colorado. Total payments of \$0.8 million, including principal and interest, will come due in 2016. Additionally, the Company owes \$0.9 million as of December 31, 2015 related to a litigation settlement reached in April 2014, which is being paid in equal installments over 40 month which began April 2014.

Additional projected product revenues are not anticipated to result in a positive cash flow position for the year 2016 overall. As such, cash liquidity sufficient for the year ending December 31, 2016 will require additional financing. Subsequent to year end, on January 19, 2016, the Company entered into a securities purchase agreement (the "Series F SPA") with the Private Investor for the sale of \$7,000,000 of the Company's newly designated Series F 7% Convertible Preferred Stock (the "Series F Preferred Stock"). See Note 20 for further information.

The Company continues to accelerate sales and marketing efforts related to its consumer products strategy through increased hiring and expansion of its sales channel. 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.

**NOTE 5. TRADE RECEIVABLES**

Trade receivables consist of amounts generated from product sales and government contracts. Accounts receivable totaled \$1.99 million and \$2.78 million as of December 31, 2015 and 2014, respectively. Product revenue for the year ended December 31, 2015 includes \$2.73 million of sales to one major customer, representing 44% of total product revenue. Product revenue for this same major customer was \$2.68 million, representing 54% of total product revenue, for the year ended

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December 31, 2014. Receivables from this major customer were \$1.13 million at December 31, 2015 and \$1.81 million at December 31, 2014.

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

**NOTE 6. PROPERTY, PLANT AND EQUIPMENT**

The following table summarizes property, plant and equipment as of December 31, 2015 and December 31, 2014:

	As of December 31,	
	2015	2014
Building	\$5,828,960	\$5,828,960
Furniture, fixtures, computer hardware and computer software	480,976	475,266
Manufacturing machinery and equipment	31,265,800	31,227,523
Depreciable property, plant and equipment	37,575,736	37,531,749
Manufacturing machinery and equipment in progress	—	66,703
Property, plant and equipment	37,575,736	37,598,452
Less: Accumulated depreciation and amortization	(28,484,708)	(22,941,264)
Net property, plant and equipment	\$9,091,028	\$14,657,188

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

Depreciation expense for the years ended December 31, 2015 and 2014 was \$5,582,783 and \$5,925,546, respectively.

Depreciation expense is recorded under "Depreciation and amortization expense" in the Consolidated Statements of Operations.

**NOTE 7. INVENTORIES**

Inventories consisted of the following at December 31, 2015 and December 31, 2014:

	As of December 31,	
	2015	2014
Raw materials	\$925,064	\$941,912
Work in process	671,746	335,275
Finished goods	2,675,570	1,150,025
Total	\$4,272,380	\$2,427,212

**NOTE 8. DEBT**

On February 8, 2008, the Company acquired a manufacturing and office facility in Thornton, Colorado, for approximately \$5.5 million. The purchase was financed by a promissory note, deed of trust and construction loan agreement (the "Construction Loan") with the Colorado Housing and Finance Authority ("CHFA"), which provided the Company borrowing availability of up to \$7.5 million for the building and building improvements. In 2009, the Construction Loan was converted to a permanent loan pursuant to a Loan Modification Agreement between the Company and CHFA (the "Permanent Loan"). The Permanent Loan, collateralized by the building, has an interest rate of 6.6% and the principal will be amortized through its term to January 2028. Further, pursuant to certain covenants in the Permanent Loan, the Company may not, among other things, without CHFA's prior written consent (which by the terms of the deed of trust is subject to a reasonableness requirement): create or incur additional indebtedness (other than obligations created or incurred in the ordinary course of business); merge or consolidate with any other entity; or make loans or advances to the Company's officers, shareholders, directors or employees.

As of December 31, 2015, future principal payments on long-term debt are due as follows:

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2016	\$348,722
2017	344,730
2018	368,183
2019	393,232
2020	419,985
Thereafter	3,916,064
	\$5,790,916

## NOTE 9. CONVERTIBLE NOTE, SERIES D PREFERRED STOCK, AND SERIES D-1 PREFERRED STOCK

## Financing Transaction

On November 14, 2014, the Company entered into the November 2014 Purchase Agreement with the Investor. Pursuant to the terms of the November 2014 Purchase Agreement, the Company sold to the Investor (i) \$3,000,000 (3,000 shares) of Series D Convertible Preferred Stock, (ii) \$32,000,000 original principal amount of senior secured convertible notes, and (iii) Warrants to purchase up to 7,777,778 shares of the Company's common stock, par value \$0.0001 per share. At the closing of the sale of the Financing, the Company entered into (i) a registration rights agreement with the Investor, (ii) a security and pledge agreement in favor of the collateral agent for the Investor, and (iii) certain account control agreements with several banks with respect to restricted control accounts described in the November 2014 Purchase Agreement. The Financing closed on November 19, 2014.

## Proceeds Received and Restricted Cash

The Company received gross proceeds of approximately \$4.5 million at Closing. The remaining \$30.5 million of gross proceeds from the Financing was deposited on the Closing Date by the Investor into restricted control account. \$2.5 million of these restricted proceeds were released on December 22, 2014 to the Company. Thereafter, additional funds from the control account could be released to the Company (i) in connection with certain conversions of the Notes and redemptions of the Series D Preferred Stock, and (ii) up to \$6 million in any 90 day period, provided that the Company meets certain equity conditions. During the year ended December 31, 2015, \$9.25 million was released to the Company.

## Description of the Notes and Series D Preferred Stock

The Notes rank senior to the Company's outstanding and future indebtedness, except for certain existing permitted indebtedness of the Company. The Notes are secured by a first priority perfected security interest in all of the Company's and its subsidiaries' current and future assets (including a pledge of the stock of the Company's subsidiaries), other than those assets which already secure the Company's existing permitted indebtedness. So long as any Notes remain outstanding, the Company and its subsidiaries will not incur any new indebtedness, except for permitted indebtedness under the Notes, or create any new encumbrances on the Company's or its subsidiaries' assets, except for permitted liens under the Notes. Under certain circumstances, subsidiaries of the Company will be required to guarantee the Company's obligations under the Notes. The Series D Preferred Stock ranks pari passu with the Company's existing Series A Preferred Stock with respect to dividends and rights upon liquidation. The Series D Preferred Stock ranked senior to the Company's Common Stock with respect to dividends and rights upon liquidation. The Series D Preferred Stock ranked junior to all existing and future indebtedness. The Series D Preferred Stock was unsecured.

Unless earlier converted or redeemed, the Notes mature 42 months after the Closing Date (the "Maturity Date"), subject to the right of the Investors to extend the date under certain circumstances. The Series D Preferred Stock had no fixed

maturity date or mandatory redemption date.

All amounts due under the Notes and the Series D Preferred Stock are convertible at any time, in whole or in part, at the option of the Investor into shares of Common Stock at a fixed conversion price, which is subject to adjustment for stock splits, stock dividends, combinations or similar events. The Notes and the Series D Preferred Stock are convertible into shares of Common Stock at the initial price of \$2.25 per share (the "Conversion Price"). If and whenever on or after the Closing Date, the Company issues or sells any shares of Common Stock for a consideration per share (the "New Issuance Price"), less than a price equal to the Conversion Price in effect immediately prior to such issuance or sale (a "Dilutive Issuance"), then, immediately after such Dilutive Issuance, the Conversion Price then in effect shall be reduced to an amount equal to the New Issuance Price.

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The Company may redeem all, but not less than all, of the Notes or the Series D Preferred Stock at any time after 30 calendar days after the earlier of (A) the date that a resale registration statement for the resale of a portion of the Common Stock underlying the Notes and Warrants becomes effective or (B) the date that the shares of Common Stock underlying the Notes and Warrants are eligible for resale under Rule 144, provided that the Company meets certain equity conditions. In the case of an optional redemption of Notes or Series D Preferred Stock by the Company, the Notes shall be redeemed in cash at a price with a redemption premium of 120% calculated by the formula specified in the Notes and the Series D Preferred Stock. The Company is required to provide holders of the Notes or Series D Preferred Stock with at least 90 trading days prior notice of its election to redeem the Notes or the Series D Preferred Stock.

The Investor has the option to convert a portion of the Notes or the Series D Preferred Stock into shares of Common Stock at an "Alternate Conversion Price" equal to the lowest of (i) the Conversion Price then in effect or (ii) 85% of the quotient of the sum of the volume-weighted average price of the Common Stock for each of the three lowest trading days during the ten consecutive trading day period ending and including the trading day immediately prior to the date of the applicable conversion date, divided by three. During the year ended December 31, 2015, the Investor exercised its option to convert 2,305 Preferred Shares, representing a value of \$2,305,000, at an Alternate Conversion Price resulting in the issuance of 8,318,690 Common Shares.

The Company agreed to make amortization payments with respect to the principal amount of the Notes and the liquidation value of the Series D Preferred Stock in shares of its Common Stock, subject to the satisfaction of certain equity conditions, or at the Company's option, in cash or a combination of shares of Common Stock and cash, in equal installments payable once every month. Per the terms of the Financing, the Company was required to make pre-payments on the monthly amortization payments twenty trading days prior to the installment due date. During the year ended December 31, 2015, the Company made installment payments towards the Series D Preferred Stock totaling \$565,341, resulting in the issuance of 1,465,972 shares of common stock. Amortization payments were first applied to the redemption of shares of Series D Preferred Stock until all shares of the Series D Preferred Stock were redeemed. Thereafter, amortization payments were applied to pay principal and interest on the Notes. Prior to the Note cancellation further described below, the Company made installment payments towards the Notes totaling \$3,703,293, resulting in the issuance of 21,424,686 shares of common stock during the year ended December 31, 2015.

For amortization payments paid in shares of Common Stock, the number of shares of Common Stock that shall be issued as an installment conversion amount shall be determined based on an installment conversion price (the "Installment Conversion Price") of the lowest of (i) the Conversion Price then in effect or (ii) 85% of the quotient of the sum of the volume-weighted average price of the Common Stock for each of the five lowest trading days during the 20 consecutive trading day period ending and including the trading day immediately prior to the applicable installment date, divided by five.

The Company classified the Series D Preferred Stock as a liability pursuant to ASC 480 at December 31, 2014 due to the structure of the financing agreement, whereby the Company had an unconditional obligation that the Company settled by issuing a variable number of common shares with a monetary value that was fixed and known at inception. There are 0 shares of Series D Preferred Stock outstanding as of December 31, 2015.

The Investor could elect to defer the payment of the installment amount due on any installment dates, in whole or in part, to another installment date, in which case the amount deferred became part of such subsequent installment date and continued to accrue interest and dividends as applicable. During an installment period, the Investor could elect to accelerate the amortization of the Notes or the Series D Preferred Stock at the Installment Conversion Price of the current installment date if, in the aggregate, all such accelerations in such period did not exceed five times the installment amount. Such accelerated amounts were payable in the Company's common stock. During the year ended

December 31, 2015, the Investor elected to defer \$4,015,849 of amortization payments to a later installment date. As a result of the deferral, \$352,204 of interest expense was added to the principal balance of the Notes. Prior to the Note cancellation further described below, the Investor elected to accelerate \$5,145,375 of the Notes, resulting in the issuance of 12,651,059 shares of common stock during the year ended December 31, 2015.

The Notes bear interest at a rate of 7% per annum, subject to increase to 15% per annum upon the occurrence and continuance of an event of default. Holders of the Series D Preferred Stock were entitled to receive dividends in the amount of 7% per annum, subject to increase to 15% per annum upon the occurrence and continuance of certain events of default. Interest on the Notes and dividends on the Series D Preferred Stock were payable monthly in shares of Common Stock or cash, at the Company's option. Interest on the Notes and dividends on the Series D Preferred Stock was computed on the basis of a 360-day year and twelve 30-day months and was payable in arrears monthly and was compounded monthly. Prior to the Note cancellation further described below, the Company paid dividends in the amount of \$3,572 on the Series D Preferred Stock,

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resulting in the issuance of 11,241 shares of common stock, and interest in the amount of \$984,632 on the Note, resulting in the issuance of 3,420,461 shares of common stock during the year ended December 31, 2015.

The Notes and the Series D Preferred Stock contain standard and customary events of default including but not limited to: (i) failure to make payments when due under the Notes and the Series D Preferred Stock; (ii) bankruptcy or insolvency of the Company; and (iii) certain failures (in the case of the Notes) to comply with the requirements under the registration rights agreement. If there is an event of default, a holder of the Notes or the Series D Preferred Stock may require the Company to redeem all or any portion of the Notes or the Series D Preferred Stock (including all accrued and unpaid interest and dividends and all interest and dividends that would have accrued through the Maturity Date), in cash, at a price equal to the greater of: (i) up to 125% of the amount being redeemed, depending on the nature of the default, or (ii) the product of (A) the conversion rate in effect at such time multiplied by (B) the product of (1) up to 125%, depending on the nature of the default, multiplied by (2) the highest closing sale price of the Common Stock on any trading day during the period beginning on the date immediately before the event of default and ending on the date of redemption. Additionally, if there is an event of default, a holder of the Notes or the Series D Preferred Stock may convert all or any portion of the Notes or the Series D Preferred Stock into shares of Common Stock. In such event, the conversion price would be the lowest of (i) the Conversion Price then in effect or (ii) 85% of the quotient of the sum of the volume-weighted average price of the Common Stock for each of the three lowest trading days during the 10 consecutive trading day period ending and including the trading day immediately prior to the date of the applicable conversion date, divided by three.

Pursuant to a number of factors outlined in ASC Topic 815, Derivatives and Hedging, the conversion options in the Notes were deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. At December 31, 2014, the derivative liability value associated with the Notes was \$17.4 million. The derivative associated with the Notes approximates management's estimate of the fair value of the embedded derivative liability at December 31, 2014 based on using a Monte Carlo simulation following a Geometric Brownian Motion with the following assumptions: annual volatility of 50%, present value discount rate of 12%, dividend yield of 0%, and remaining life of 3.4 years.

### Cancellation of the Notes

On September 4, 2015, the Company entered into a Cancellation and Waiver Agreement (the "Cancellation Agreement") with the Investor. Pursuant to the Cancellation Agreement, the Company agreed to retire all \$21.2 million of the outstanding Notes as of September 4, 2015. Under the terms of the Cancellation Agreement, the Company will pay the Investor an aggregate of \$25.1 million to retire all \$21.2 million aggregate principal amount of Notes outstanding as of September 4, 2015. \$18.8 million was paid immediately to the Investor and was funded from the Company's restricted control account relating to the Notes. The remaining \$6.3 million (the "Investor Payable") was to be paid in two installments; \$2.4 million was due on October 19, 2015 and \$3.9 million was due on December 4, 2015.

The Investor Payable was convertible only upon an event of default, as defined. Upon an event of default, the Investor Payable would become share-settled debt that is subject to ASC 480. As a result, the Company recorded the Investor Payable at fair value as of September 4, 2015 and recorded a debt discount on the Investor Payable of \$0.1 million.

A net loss on extinguishment of the Notes and related embedded derivative of \$11.6 million was recorded to "Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net" in the Consolidated Statements of Operations for the year ended December 31, 2015.

### Amendment No. 1 to the Cancellation Agreement



On October 8, 2015, the Company and the Investor entered into Amendment No. 1 to the Cancellation Agreement ("Amendment No. 1"). Amendment No. 1 provides that: (1) the Company will not make the October 19 payment to retire the \$2.4 million portion of the Investor Payable; (2) the December 4 payment was modified from a payment of \$3.9 million to a payment of \$2.8 million on December 20, 2015 (the "Investor Payable - Amendment 1"); (3) \$3.5 million of the Investor Payable has been reinstated to the previously outstanding Notes (the "Reinstated Notes"). This \$3.5 million portion of the Reinstated Notes shall remain outstanding with all the current and existing rights and terms from the previously outstanding Notes, including, without limitation, existing rights of conversion and redemption.

During the year ended December 31, 2015, the Company made installment payments towards the Reinstated Notes totaling \$853,659, resulting in the issuance of 6,959,180 shares of common stock. The Investor elected to accelerate

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\$1,001,000 of the Reinstated Notes, resulting in the issuance of 10,536,971 shares of common stock during the year ended December 31, 2015.

The Investor had available to them a new conversion price beginning on November 4, 2015 as a result of the Series E Preferred Stock transaction further described in Note 11. The Investor could elect to convert a portion of the Reinstated Notes into shares of common stock using a conversion price equal to 80% of the average of the two lowest volume weighted average prices of our common stock for the ten consecutive trading day period prior to each specific conversion date (the "Variable Price"). During the year ended December 31, 2015, the Investor elected to convert \$1,634,992 of the Reinstated Notes using the Variable Price, resulting in the issuance of 16,981,640 shares of common stock. As of December 31, 2015, \$52,500 of the Reinstated Notes remain outstanding.

The Company paid interest in the amount of \$35,217 on the Reinstated Notes, resulting in the issuance of 314,888 shares of common stock during the year ended December 31, 2015.

Pursuant to a number of factors outlined in ASC Topic 815, Derivatives and Hedging, the conversion options in the Reinstated Notes were deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. On October 8, 2015, a derivative liability and a corresponding debt discount in the amount of \$4,808,800 were recorded. The debt discount is being charged to interest expense ratably over the life of the Reinstated Notes.

The derivative liability associated with the Reinstated Notes is subject to revaluation on a quarterly basis to reflect the market value change of the embedded conversion option. At December 31, 2015, the Company conducted a fair value assessment of the embedded derivative associated with the Reinstated Notes. As a result of the fair value assessment, the Company recorded a \$4,747,800 gain as "Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net" in the Consolidated Statements of Operations to properly reflect the fair value of the embedded derivative of \$61,000 as of December 31, 2015.

The derivative associated with the Reinstated Notes approximates management's estimate of the fair value of the embedded derivative liability at October 8, 2015 and December 31, 2015 based on using a Monte Carlo simulation following a Geometric Brownian Motion. The assumptions used as of October 8, 2015 were annual volatility of 37%, present value discount rate of 12%, dividend yield of 0%, and remaining life of 2.61 years. The assumptions used as of December 31, 2015 were annual volatility of 34%, present value discount rate of 12%, dividend yield of 0%, and remaining life of 2.39 years.

A net loss on extinguishment of \$27,100 was recorded to "Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net" in the Consolidated Statements of Operations as a result of Amendment No. 1 for the year ended December 31, 2015.

Amendment No. 2 to the Cancellation Agreement

On November 22, 2015 the Company and the Investor entered into Amendment No. 2 to the Cancellation Agreement ("Amendment No. 2). Amendment No. 2 provides that: (1) the Investor Payable - Amendment 1 has been modified. The Company now has agreed to make a payment of \$1.0 million on December 21, 2015 (the "Final Investor Payable"); (2) \$1.8 million of the Investor Payable - Amendment 1 has been reinstated to the previously outstanding Notes (the "November 2015 Reinstated Notes"). Except as provided below in item (4), this \$1.8 million portion of the November 2015 Reinstated Notes will remain outstanding with all its current and existing rights and terms from the previously outstanding Notes including, without limitation, existing rights of conversion and redemption; (3) The Investor has agreed to release as of January 15, 2016 the security interest on that portion of the collateral securing the previously

outstanding Notes that constitutes accounts receivable of the Company. The Investor has also agreed to release as of February 8, 2016 the security interest in the remaining collateral securing the previously outstanding Notes; (4) With respect to the \$1.8 million November 2015 Reinstated Notes only, the Investor has agreed to delete Section 8 of the November 2014 Purchase Agreement. As such, the \$1.8 million November 2015 Reinstated Notes will not have installment payments, accelerations, or deferrals.

During the year ended December 31, 2015, the Investor elected to convert \$1.8 million of the November 2015 Reinstated Notes using the Variable Price, resulting in the issuance of 18,644,996 shares of common stock. As of December 31, 2015, \$0 of the November 2015 Reinstated Notes remain outstanding.

The Company paid interest in the amount of \$3,003 on the November 2015 Reinstated Notes, resulting in the issuance of 30,890 shares of common stock during the year ended December 31, 2015.

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Pursuant to a number of factors outlined in ASC Topic 815, Derivatives and Hedging, the conversion options in the November 2015 Reinstated Notes were deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. On November 22, 2015, a derivative liability and a corresponding debt discount in the amount of \$2.2 million were recorded. The debt discount of \$2.2 million was charged to interest expense. As of December 31, 2015, the value of the derivative liability associated with the November 2015 Reinstated Notes is \$0 as the November 2015 Reinstated Notes were fully converted as of December 31, 2015. As such, a gain of \$2.2 million was recorded to "Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net" in the Consolidated Statements of Operations for the year ended December 31, 2015.

The derivative associated with the November 2015 Reinstated Notes approximates management's estimate of the fair value of the embedded derivative liability at the closing date based on using a Monte Carlo simulation following a Geometric Brownian Motion with the following assumptions: annual volatility of 55%, present value discount rate of 12%, dividend yield of 0%, and a life of 2.49 years.

A net loss on extinguishment of \$15,700 was recorded to "Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net" in the Consolidated Statements of Operations as a result of Amendment No. 2 for the year ended December 31, 2015.

The \$1,000,000 Final Investor Payable was paid to the Investor on December 21, 2015.

### Description of Series D-1 Preferred Stock

On February 19, 2015, the Company entered into a securities purchase agreement to issue 2,500 shares of Series D-1 Preferred Stock to an investor in exchange for \$2,500,000. The proceeds were received on the closing date, February 25, 2015.

All amounts due under the Series D-1 Preferred Stock were convertible at any time, in whole or in part, at the option of the investor into shares of Common Stock at a fixed conversion price, which was subject to adjustment for stock splits, stock dividends, combinations or similar events. The Series D-1 Preferred Stock was convertible into shares of Common Stock at the initial price of \$2.31 per share. If and whenever on or after the closing date, the Company issues or sells any shares of Common Stock for a consideration per share less than a price equal to the conversion price in effect immediately prior to such issuance or sale, the conversion price, then in effect, shall be reduced to an amount equal to the new issuance price immediately after the dilutive issuance.

The investor had the option to convert a portion of the Series D-1 Preferred Stock into shares of Common Stock at a "D-1 Alternate Conversion Price" equal to the lowest of (i) \$2.31 per share or (ii) 85% of the lowest volume-weighted average price of the Common Stock on any trading day during the five consecutive trading day period ending and including the trading day immediately prior to the date of the applicable conversion date. During the year ended December 31, 2015, the investor exercised its option to convert 2,500 Preferred Shares, representing a value of \$2,500,000, at a D-1 Alternate Conversion Price resulting in the issuance of 2,305,824 Common Shares.

Holders of the Series D-1 Preferred Stock were entitled to receive dividends in the amount of 7% per annum, subject to increase to 15% per annum upon the occurrence and continuance of certain events of default. Dividends on the Series D-1 Preferred Stock were payable monthly in shares of Common Stock or cash, at the Company's option. Dividends on the Series D-1 Preferred Stock were computed on the basis of a 360-day year and 12 30-day months, were compounded and payable in arrears monthly. During the year ended December 31, 2015, the Company paid

dividends in the amount of \$6,944 on the Series D-1 Preferred Stock, resulting in the issuance of 3,896 shares of common stock.

The Company classified the Series D-1 Preferred Stock as a liability pursuant to ASC 480 on the closing date due to the structure of the financing agreement, whereby the Company had an unconditional obligation that the Company may settle by issuing a variable number of common shares with a monetary value that is fixed and known at inception. There were 0 shares of Series D-1 Preferred Stock outstanding as of December 31, 2015.

Pursuant to a number of factors outlined in ASC Topic 815, Derivatives and Hedging, the conversion options in the Series D-1 Preferred Stock were deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. At closing, a derivative liability and a corresponding debt discount in the amount of \$3.4 million were recorded. The debt discount of \$3.4 million was charged to interest expense. As of December 31, 2015, the

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value of the derivative liability associated with the Series D-1 Preferred Stock was \$0 as the Series D-1 Preferred Stock was fully converted as of December 31, 2015.

A net gain of \$2.7 million was recorded to "Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net" in the Consolidated Statements of Operations for the year ended December 31, 2015 upon extinguishment of the D-1 Preferred Stock liability and the related embedded derivative.

The derivative associated with the Series D-1 Preferred Stock approximates management's estimate of the fair value of the embedded derivative liability at the closing date based on using a Monte Carlo simulation following a Geometric Brownian Motion with the following assumptions: annual volatility of 45%, present value discount rate of 12%, dividend yield of 0%, and a life of 0.2 years.

Embedded derivative associated with the Series D Preferred Stock

Pursuant to a number of factors outlined in ASC Topic 815, Derivatives and Hedging, the conversion options in the Series D Preferred Stock were deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. At December 31, 2014, the derivative liability value associated with the Series D Preferred Stock was \$0.4 million. As of December 31, 2015, the value of the derivative liability associated with the Series D Preferred Stock was \$0 as the Series D Preferred Stock was fully converted as of December 31, 2015. A gain of \$0.4 million was recorded to "Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net" in the Consolidated Statements of Operations for the year ended December 31, 2015.

The derivative associated with the Series D Preferred Stock approximates management's estimate of the fair value of the embedded derivative liability at December 31, 2014 based on using a Monte Carlo simulation following a Geometric Brownian Motion with the following assumptions: annual volatility of 50%, present value discount rate of 12%, dividend yield of 0%, and remaining life of 3.4 years.

Description of the Warrants Associated with the Notes, Series D Preferred Stock, and Series D-1 Preferred Stock

The warrants associated with the Notes and Series D Preferred Stock ("November Warrants") entitled the Investor to purchase, in the aggregate, up to 7,777,778 shares of Common Stock. The November Warrants were exercisable at any time on or after the six month anniversary of the closing date through the fifth anniversary of such date. The November Warrants were exercisable at an initial exercise price equal to \$2.25 per share. The warrants associated with the Series D-1 Preferred Stock (the "February Warrants") entitled the Investor to purchase, in the aggregate, up to 541,126 shares of Common Stock. The February Warrants were exercisable at any time on or after the six month anniversary of the closing date through the fifth anniversary of such date. The February Warrants were exercisable at an initial exercise price equal to \$2.31 per share. The exercise price of the November and February Warrants was subject to adjustment for stock splits, stock dividends, combinations or similar events. In addition, the exercise price was also subject to a "full ratchet" anti-dilution adjustment, subject to customary exceptions in the event the Company issued securities at a price lower than the then applicable exercise price.

On July 22, 2015, the Company entered into an Amendment and Exchange Agreement (the "Exchange Agreement"), between the Company and the Investor. Pursuant to the Exchange Agreement, the November and February Warrants were canceled, and the Company issued to the Investor a right to receive a fixed number of shares of common stock of the Company in accordance with the terms of a Right to Receive Common Stock dated July 22, 2015 (the "Right").

The Right obligated the Company to issue to the Investor (without the payment of any additional consideration) an aggregate of 8.3 million shares of Common Stock (the "Right Shares"). The Right was immediately exercisable for 1.5 million Right Shares. The Right was not exercisable for the remaining 6.8 million Right Shares until November 22, 2015. In the Exchange Agreement, the Holder agreed to limit sales of the Right Shares (i) during the period until November 22, 2015 to 750,000 shares during any 30-day period, and (ii) during the six-month period from November 22, 2015 through May 22, 2016 to approximately 1.1 million shares during any 30-day period. In an amendment to the Exchange Agreement on October 8, 2015, the parties agreed to eliminate such exercise and sale limitations. The remaining 6.8 million share portion of the Right became exercisable and such shares were not subject to such previous contractual restrictions on sales. During the year ended December 31, 2015, the Investor had exercised their Right to receive and the Company had delivered all 8.3 million shares of common stock.

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Pursuant to ASC 815, the Company was required to report the value of the November and February Warrants as a liability at fair value and record the changes in the fair value of the warrant liability as a gain or loss in its statements of operations due to the price-based anti-dilution provisions. The Company utilized the Monte Carlo simulation valuation method to value the liability classified warrants. At December 31, 2014, the value of the liability associated with the November Warrants was calculated to be \$15.9 million. At February 25, 2015, the closing date of the February Warrants, the value of the liability associated with the February Warrants was calculated to be \$0.9 million.

As a result of the Exchange Agreement and cancellation of the November and February warrants, a net gain on extinguishment of the warrant liability associated with the November and February Warrants of \$13.9 million was recorded to "Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net" in the Consolidated Statements of Operations for year ended December 31, 2015.

The fair value of the November warrants as of December 31, 2014 was determined using Level 3 inputs. Inherent in the Monte Carlo valuation model are assumptions related to expected stock-price volatility, expected life, risk-free interest rate and dividend yield. The Company estimated the volatility of its common stock to be 64% based on 5.4 years, the expected remaining life of the warrants. The risk-free interest rate of 1.66% was based on the U.S. Treasury zero-coupon yield curve on the grant date for a maturity similar to the expected remaining life of the warrants. The dividend rate was based on the historical rate, which the Company anticipated to remain at zero.

The fair value of the February Warrants as of February 25, 2015 was determined using Level 3 inputs. Inherent in the Monte Carlo valuation model are assumptions related to expected stock-price volatility, expected life, risk-free interest rate and dividend yield. The Company estimated the volatility of its common stock to be 69% based on the expected remaining life of the February Warrants, 5.5 years. The risk-free interest rate of 1.47% was based on the U.S. Treasury zero-coupon yield curve on the grant date for a maturity similar to the expected remaining life of the February Warrants. The dividend rate was based on the historical rate, which the Company anticipates to remain at zero.

**NOTE 10. SEPTEMBER 2015 CONVERTIBLE NOTES**

On September 4, 2015, the Company entered into a note purchase agreement between the Company and the Lenders. Pursuant to the new loan agreement, the Company issued to the Lenders \$1.5 million original principal amount of secured subordinated convertible notes on September 4, 2015, and an additional \$0.5 million original principal amount of secured subordinated convertible notes on September 28, 2015 (collectively, the "September 2015 Convertible Notes").

All amounts due under the September 2015 Convertible Notes are convertible at any time, in whole or in part, at the option of the Lenders into shares of Common Stock at a fixed conversion price, which is subject to adjustment for stock splits, stock dividends, combinations or similar events, of \$0.12 per share (the "Conversion Price"). The Company, however, was prohibited from issuing shares of Common Stock pursuant to the September 2015 Convertible Notes unless stockholder approval of such issuance of securities is obtained as required by applicable NASDAQ listing rules. The Company received stockholder approval of such share issuances at a special stockholders meeting held on December 18, 2015. This provision resulted in a contingent beneficial conversion feature that was recognized once the contingency was resolved based on its intrinsic value at the commitment date. Accordingly, a beneficial conversion feature in the amount of \$1.38 million was recorded as a debt discount on December 18, 2015. The debt discount will be recognized as additional interest expense over the life of the September 2015 Convertible Notes.

There are no registration rights applicable to the September 2015 Convertible Notes. Accordingly, any shares of Common Stock issued upon conversion of the September 2015 Convertible Notes will be restricted and may only be sold in compliance with Rule 144 or in accordance with another exemption from registration.



Unless earlier converted or redeemed, the September 2015 Convertible Notes will mature on September 4, 2016 (the “Maturity Date”). The September 2015 Convertible Notes bear interest at a rate of 8% per annum. Principal and interest on the September 2015 Convertible Notes is payable on the Maturity Date. The Company accrued \$49,000 of interest during the year ended December 31, 2015.

The September 2015 Convertible Notes are secured by a security interest in substantially all of the Company’s assets (other than the Company’s Thornton, Colorado real estate assets which currently secure other outstanding indebtedness). The security interest for the September 2015 Convertible Notes will be subordinated to the security interest securing the Convertible Notes unless and until the Convertible Notes are completely retired.

NOTE 11. SERIES E PREFERRED STOCK AND THE COMMITTED EQUITY LINE

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Series E Preferred Stock

On November 4, 2015, the Company entered into a securities purchase agreement with a Private Investor to issue 2,800 shares of Series E Preferred Stock to an investor in exchange for \$2,800,000. The proceeds were fully received upon effectiveness of the Company's registration statement covering the re-sale of the common stock underlying the Series E Preferred Stock in December of 2015.

Shares of the Series E Preferred Stock (including the amount of any accrued and unpaid dividends thereon) are convertible at the option of the holder into common stock at a variable conversion price equal to 80% of the average of the two lowest volume weighted average prices of the Company's common stock for the ten consecutive trading day period prior to the conversion date. If certain defined default events occur, then the conversion price would thereafter be reduced (and only reduced), to equal 70% of the average of the two lowest VWAPs of the Company's common stock for the twenty consecutive trading day period prior to the conversion date. During the year ended December 31, 2015, the Private Investor exercised their option to convert 477 Series E Preferred Shares, representing a value of \$477,415, resulting in the issuance of 4,957,585 shares of common stock.

Holders of the Series E Preferred Stock will be entitled to dividends in the amount of 7% per annum, payable when, as and if declared by the Board of Directors in its discretion. During the year ended December 31, 2015, the Company paid dividends in the amount of \$4,085 on the Series E Preferred Stock, resulting in the issuance of 42,415 shares of common stock.

The Company has issued 360,000 shares of common stock to the Private Investor as a commitment fee relating to the Series E Preferred Stock. Costs associated with the Series E Preferred Stock, such as legal fees and commitment shares are capitalized and reported as deferred financing costs on the Consolidated Balance Sheets. The total gross debt issuance cost incurred by the Company related to the Series E Preferred Stock was \$104,000. These debt issuance costs will be recognized as additional interest expense over the life of the Series E Preferred Stock.

At any time after March 31, 2016, the Private Investor will have the option to redeem for cash all or any portion of the outstanding shares of the Series E Preferred Stock at a price per share equal to \$1,250 plus any accrued but unpaid dividends thereon.

At any time after the third anniversary of the date of the initial issuance of Series E Preferred Stock, the Company will have the option to redeem for cash all outstanding shares of the Series E Preferred Stock at a price per share equal to \$1,250 plus any accrued but unpaid dividends thereon.

The Company classified the Series E Preferred Stock as a liability pursuant to ASC 480 on the closing date due to the structure of the financing agreement, whereby the Company has an unconditional obligation that the Company may settle by issuing a variable number of common shares with a monetary value that is fixed and known at inception. There are 2,323 shares of Series E Preferred Stock outstanding as of December 31, 2015.

Pursuant to a number of factors outlined in ASC Topic 815, Derivatives and Hedging, the conversion option in the Series E Preferred Stock were deemed to include an embedded derivative that required bifurcation and separate accounting. As such, the Company ascertained the value of the conversion option as if separate from the convertible issuance and appropriately recorded that value as a derivative liability. At closing, a derivative liability and a corresponding debt discount in the amount of \$1,485,000 was recorded. The debt discount will be charged to interest expense ratably over the life of the Series E Preferred Stock.

The derivative liability associated with the Series E Preferred Stock is subject to revaluation on a quarterly basis to reflect the market value change of the embedded conversion option. At December 31, 2015, the Company conducted a fair value assessment of the embedded derivative associated with the Series E Preferred Stock. As a result of the fair value assessment, the Company recorded a \$932,000 gain as "Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net" in the Consolidated Statements of Operations to properly reflect the fair value of the embedded derivative of \$553,000 as of December 31, 2015.

The derivative associated with the Series E Preferred Stock approximates management's estimate of the fair value of the embedded derivative liability at December 31, 2015 based on using a Monte Carlo simulation following a Geometric Brownian Motion with the following assumptions: annual volatility of 54%, present value discount rate of 12% and dividend yield of 0%.

The Committed Equity Line

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On November 10, 2015, the Company and the Private Investor entered into a committed equity line purchase agreement (the "CEL"). Under the terms and subject to the conditions of the CEL purchase agreement, at its option the Company has the right to sell to the Private Investor, and the Private Investor is obligated to purchase from the Company, up to \$32.2 million of the Company's common stock, subject to certain limitations, from time to time, over the 36-month period commencing on December 18, 2015, the date that the registration statement was declared effective by the SEC.

From time to time, the Company may direct the Private Investor, at its sole discretion and subject to certain conditions, to purchase an amount of shares of common stock up to the lesser of (i) \$1,000,000 or (ii) 300% of the average daily trading volume of the Company's common stock over the preceding ten trading day period. The per share purchase price for shares of common stock to be sold by the Company under the CEL purchase agreement shall be equal to 80% of the average of the two lowest VWAPs of the common stock for the ten consecutive trading day period prior to the purchase date. During the year ended December 31, 2015, the Company directed the Private Investor to purchase \$2,000,000 of common stock which resulted in the issuance of 16,850,923 shares of common stock.

The Company may not direct the Private Investor to purchase shares of common stock more frequently than once each ten business days. The Company's sales of shares of common stock to the Private Investor under the CEL purchase agreement are limited to no more than the number of shares that would result in the beneficial ownership by the Private Investor and its affiliates, at any single point in time, of more than 9.99% of the Company's then outstanding shares of common stock.

As consideration for entering into the CEL purchase agreement, the Company has agreed to issue to the Private Investor 2,640,000 shares of common stock (the "Commitment Shares"). The Commitment Shares will be issued to the Private Investor in four increments which commenced upon the date that the registration statement was declared effective by the SEC. During the year ended December 31, 2015, the Company issued 500,000 Commitment Shares to the Private Investor.

**NOTE 12. MAKE-WHOLE DIVIDEND LIABILITY**

In June 2013, the Company entered into a Series A Preferred Stock purchase agreement. Holders of Series A Preferred Stock are entitled to cumulative dividends at a rate of 8.0% per annum, with the dividend rate being indexed to the Company's stock price and subject to adjustment. Conversion or redemption of the Series A Preferred Stock within 4 years of issuance requires the Company pay a make-whole dividend to the holders, whereby dividends for the full four year period are to be paid in cash or common stock (valued at 10% below market price).

In October 2013, the Company entered into a Series B Preferred Stock purchase agreement. Holders of Series B Preferred Stock are entitled to cumulative dividends at a rate of 5.75% per annum, with the dividend rate being indexed to the Company's stock price and subject to adjustment. Conversion or redemption of the Series B Preferred Stock within 5 years of issuance requires the Company pay a make-whole dividend to the holders, whereby dividends for the full five year period are to be paid in cash or common stock (valued at 8% below market price, but not to exceed the lowest closing price paid during the applicable measurement period).

In April 2014, the Company entered into a securities purchase agreement to issue 600 shares of Series C Preferred Stock to an investor in exchange for \$6.0 million. Holders of Series C Preferred Stock are entitled to cumulative dividends at a rate of 5.75% per annum, when and if declared by the Board of Directors in its sole discretion. The dividends may be paid in cash or in the form of common stock (valued at 8% below market price, but not to exceed 92% of the lowest closing price during the applicable measurement period), at the discretion of the Board of Directors. The dividend rate on the Series C Preferred Stock is indexed to the Company's stock price and subject to adjustment. In addition, the Series C Preferred Stock contains an embedded dividend provision whereby, conversion or redemption of the preferred stock within 5 years of issuance will require dividends for the full five year period to be

paid by the Company in cash or common stock (valued at 8% below market price, but not to exceed 92% of the lowest closing price during the applicable measurement period).

The Company concluded the make-whole payments should be characterized as embedded derivatives under ASC 815. See Note 3. Summary of Significant Accounting Policies and Note 13. Stockholders' Equity. Make-whole dividends are expensed at the time of issuance and recorded as "Deemed dividends on Preferred Stock and accretion of warrants" in the Consolidated Statements of Operations and "Make-whole dividend liability" in the Consolidated Balance Sheets. During the year ended December 31, 2014 the Company recorded make-whole dividends of \$8.1 million related to Series B and Series C Preferred Stock. The fair value of these dividend liabilities, which are indexed to the Company's common stock, must be evaluated at each period end. The fair value measurements rely primarily on Company-specific inputs and the Company's own assumptions. With the absence of observable inputs, the Company determined these recurring fair value measurements reside primarily within Level 3 of the fair value hierarchy. Fair value determination required forecasting stock price volatility, expected average annual return and conversion date. As a result of this analysis, during the year ended December 31, 2014, the Company recorded a net increase in

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fair value of the liability in the amount of \$3.5 million, recorded as "Change in fair value of derivatives and gain/(loss) on extinguishment of liabilities, net" in Other Income/(Expense) in the Consolidated Statements of Operations and in the Statement of Cash Flows. During the year ended December 31, 2015, there was no change in the fair value of the make-whole liability from the fair value at December 31, 2014.

At December 31, 2015, there were 212,390 shares of Series A Preferred Shares outstanding. All remaining shares of Series B and Series C Preferred Shares were converted into shares of common stock during 2014. At December 31, 2015, the Company was entitled to redeem the outstanding Series A preferred shares for \$1.7 million, plus a make-whole amount of \$0.8 million, payable in cash or common shares. The fair value of the make-whole dividend liability for the Series A Preferred Shares, which approximates cash value, was \$0.8 million as of December 31, 2015.

NOTE 13. STOCKHOLDERS' EQUITY

Common Stock

At December 31, 2015, the Company had 450,000,000 shares of common stock, \$0.0001 par value, authorized for issuance. Each share of common stock has the right to one vote. As of December 31, 2015, the Company had 155,196,865 shares of common stock outstanding. The Company has not declared or paid any dividends related to its common stock through December 31, 2015.

On August 26, 2014, the Company, a Delaware corporation, filed a Certificate of Amendment with the Secretary of State of the State of Delaware to effect the Reverse Stock Split of the Company's common stock, par value \$0.0001 per share at a ratio of one-for-ten. 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 ten 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 financial statements and accompanying notes have been retroactively adjusted to give effect to the Reverse Stock Split.

TFG Radiant Purchases of Common Stock

In August 2011, the Company completed a strategic alliance with TFG Radiant. As part of this strategic alliance, TFG Radiant acquired 640,000 shares of the Company's common stock at a price of \$11.50 per share or \$7,360,000 in the aggregate. The closing price of the Company's common stock on August 12, 2011 was \$7.30. In addition, TFG Radiant received an option to acquire an additional 950,000 shares of the Company's common stock at an exercise price of \$15.50 per share. The option was approved by the Company's stockholders on October 27, 2011. TFG Radiant could not exercise this option unless, and until, TFG Radiant meets a specified milestone associated with the construction of the first East Asia FAB. This option expired on February 12, 2014.

In January 2012, TFG Radiant agreed to purchase 806,739 shares of the Company's common stock owned by Norsk Hydro for \$4 million, or approximately \$5.00 per share. The TFG Radiant purchase of these shares closed on March 30, 2012.

On April 6, 2015, the Company entered into a securities purchase agreement with TFG Radiant for a private placement of a total of 1,000,000 shares of the Company's common stock which resulted in gross proceeds of approximately \$1 million to the Company. The transaction closed on April 17, 2015.

On June 10, 2015, the Company entered into a securities purchase agreement with TFG Radiant for a private placement of a total of 1,000,000 shares of the Company's common stock which resulted in gross proceeds of approximately \$1 million to the Company. The transaction closed on July 10, 2015. As of December 31, 2015, TFG Radiant's ownership was approximately 4% of the Company's outstanding Common Stock.

Private Placements of Common Stock

On July 29, 2014, the Company entered into a securities purchase agreement with SHTARD Enterprises Ltd. Pursuant to the terms of the Purchase Agreement, the Company issued and sold to SHTARD 400,000 shares of the Company's common stock in the aggregate original amount of \$1,320,000 or \$3.30 per share. On August 11, 2014, SHTARD purchased an additional 800,000 shares from the Company at \$3.30 per share or \$2,640,000.

On August 29, 2014, the Company entered into a securities purchase agreement with Seng Wei Seow and TFG Radiant for a private placement of a total of 3,115,618 shares of the Company's common stock, which resulted in gross proceeds of approximately \$8,000,000 to the Company. The private placement took place in two tranches. In the first

tranche, which closed on August 29, 2014, the Company issued (i) 845,309 shares of Common Stock to Seow and (ii) 845,309 shares of Common Stock to TFG Radiant, all at a price of \$2.366 per share, resulting in gross proceeds of approximately \$4,000,000 to the Company. For the second tranche, which closed on November 11, 2014, the Company issued 1,425,000 shares of Common Stock to TFG Radiant at a price of \$2.80 per share, resulting in gross proceeds of approximately \$4,000,000 to the Company.

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### Shelf Registration

In October 2014, the Company filed a “shelf” Registration Statement on Form S-3 with the SEC. With the shelf registration, the Company may from time to time sell common stock, preferred stock, warrants or some combination in one or more offerings for up to \$25.0 million. The registration became effective October 16, 2014. This shelf registration replaces the Company's prior shelf registration statement. As of December 31, 2015, approximately \$22.0 million was unused on the shelf registration.

### Preferred Stock

At December 31, 2015, the Company had 25,000,000 shares of preferred stock, \$0.0001 par value, authorized for issuance. Preferred stock may be issued in classes or series. Designations, powers, preferences, rights, qualifications, limitations and restrictions are determined by the Company's Board of Directors. 750,000 shares have been designated as Series A preferred stock, 2,000 shares have been designated for Series B-1 and B-2 preferred stock, 690 shares have been designated as Series C preferred stock, 3,000 shares have been designated as Series D preferred stock, 2,500 shares have been designated as Series D-1 preferred stock, and 2,800 shares have been designated as Series E preferred stock. As of December 31, 2015, the Company had 212,390 shares of Series A preferred stock, 0 shares of Series B-1 and B-2 preferred stock, 0 shares of Series C preferred stock, 0 shares of Series D preferred stock, 0 shares of Series D-1 preferred stock, and 2,323 shares of Series E preferred stock, outstanding. The Company has no declared unpaid dividends related to the preferred stock as of December 31, 2015.

**Series A preferred stock:** In June 2013, the Company entered into a securities purchase agreement with an investor to sell an aggregate of 750,000 shares of Series A Preferred Stock at a price of \$8.00 per share, resulting in gross proceeds of \$6,000,000. This purchase agreement included warrants to purchase up to 262,500 shares of common stock of the Company. The transfer of cash and securities took place incrementally, the first closing occurring on June 17, 2013 with the transfer of 125,000 shares of Series A preferred stock and a warrant to purchase 43,750 shares of common stock for \$1,000,000. The final closing took place in August 2013, with the transfer of 625,000 shares of Series A preferred stock and a warrant to purchase 218,750 shares of common stock for \$5,000,000.

Holder of Series A preferred stock are entitled to cumulative dividends at a rate of 8.0% per annum when and if declared by the Board of Directors in its sole discretion. The dividends may be paid in cash or in the form of common stock (valued at 10% below market price, but not to exceed the lowest closing price during the applicable measurement period), at the discretion of the Board of Directors. The dividend rate on the Series A preferred stock is indexed to the Company's stock price and subject to adjustment. In addition, the Series A preferred stock contains a make-whole provision whereby, conversion or redemption of the preferred stock within 4 years of issuance will require dividends for the full four year period to be paid by the Company in cash or common stock (valued at 10% below market price, but not to exceed the lowest closing price during the applicable measurement period).

The Series A preferred stock may be converted into shares of common stock at the option of the Company if the closing price of the common stock exceeds \$11.60, as adjusted, for 20 consecutive trading days, or by the holder at any time. The Company has the right to redeem the Series A preferred stock at a price of \$8.00 per share, plus any accrued and unpaid dividends, plus the make-whole amount (if applicable). At December 31, 2015, the preferred shares were not eligible for conversion to common shares, at the option of the Company. The holder of the preferred shares may convert to common shares at any time, at no cost, at a ratio of 1 preferred share into 1 common share (as adjusted for the Reverse Stock Split, subject to standard ratable anti-dilution adjustments). Upon any conversion (whether at the option of the Company or the holder), the holder is entitled to receive any accrued but unpaid dividends and also any make-whole amount (if applicable). See Note 12. Make-whole dividend liability.

During the twelve months ended December 31, 2015, the holder of the Series A preferred stock converted 0 preferred shares into shares of common stock. During the twelve months ended December 31, 2014, the holder of the Series A preferred stock converted 150,000 preferred shares into 150,000 shares of common stock. As a result of these conversions, the Company paid make-whole dividends in the amount of 104,075 shares of common stock in lieu of a cash payment of \$520,000.

Except as otherwise required by law (or with respect to approval of certain actions), the Series A preferred stock shall have no voting rights. Upon any liquidation, dissolution or winding up of the Company, after payment or provision for payment of debts and other liabilities of the Company, the holders of Series A preferred stock shall be entitled to



receive, pari passu with any distribution to the holders of common stock of the Company, an amount equal to \$8.00 per share of Series A preferred stock plus any accrued and unpaid dividends.

The warrants offered as part of the securities purchase agreement have a three year term and require payment of an exercise price of \$9.00 per common share to the Company.

The securities purchase agreement for the Series A preferred stock required the registration statement, filed on August 16, 2013, must be declared effective within 90 days of the filing date. If the registration statement was not declared effective by this

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date, damages of 1% of the total investment amount, or \$60,000, plus interest, would have been owed by the Company to the Holder for each month until registration statement effectiveness is reached or the investment amount is repaid in full. The registration statement became effective on August 30, 2013, therefore any potential registration rights liability owed to the Holder by the Company was eliminated as of September 30, 2013.

Series B preferred stock: In October 2013, the Company entered into a securities purchase agreement with an investor to offer up to 1,000 shares of Series B-1 and Series B-2 preferred stock at a price of \$10,000 per share, and gross proceeds of up to \$10,000,000. The Company offered the Series B preferred stock in two tranches. The first tranche closed on November 1, 2013, with the Company selling 500 shares of Series B-1 preferred stock in exchange for gross proceeds of \$5,000,000. On January 20, 2014, at a special meeting of the stockholder's, the Company obtained stockholder approval for the offering. Delivery of the second tranche of \$5,000,000 in exchange for 500 shares of Series B-1 preferred shares occurred on February 7, 2014. With the closing of both tranches resulting in the issuance of Series B-1 preferred shares, the Company will not offer Series B-2 preferred shares.

Holders of Series B preferred stock are entitled to cumulative dividends at a rate of 5.75% per annum when, and if, declared by the Board of Directors in its sole discretion. The dividends may be paid in cash or in the form of common stock (valued at 8% below market price, but not to exceed the lowest closing price during the applicable measurement period), at the discretion of the Board of Directors. The dividend rate on the Series B preferred stock is indexed to the Company's stock price and subject to adjustment. In addition, the Series B preferred stock contains an embedded dividend provision whereby, conversion or redemption of the preferred stock within 5 years of issuance will require dividends for the full five year period to be paid by the Company in cash or common stock (valued at 8% below market price, but not to exceed the lowest closing price during the applicable measurement period).

The Series B preferred stock may be converted into shares of common stock at the option of the Company if the closing price of the common stock exceeds \$20.00, as adjusted, for 20 consecutive trading days, or by the holder at any time. The Company has the right to redeem the Series B preferred stock at a price of \$10,000 per share, plus any accrued and unpaid dividends, plus the embedded dividend liability amount (if applicable). The holder of the Series B-1 preferred stock may convert to common shares at any time, at no cost, at a conversion price of \$11.50 and a ratio of 1 preferred share into 870 common shares. Conversions by the holder are subject to standard ratable anti-dilution adjustments. Upon any conversion (whether at the option of the Company or the holder), the holder is entitled to receive any accrued but unpaid dividends and also any embedded dividend amount (if applicable). See Note 12.

Make-whole dividend liability.

During the twelve months ended December 31, 2014, the holder of the Series B preferred stock converted the 850 preferred shares into 739,130 shares of common stock. As a result of these conversions, the Company paid a make-whole dividends in the amount of 1,238,681 shares of common stock in lieu of a cash payment of \$6,483,000. As of December 31, 2014 there were 0 shares of Series B preferred stock outstanding.

Except as otherwise required by law (or with respect to approval of certain actions), the Series B preferred stock shall have no voting rights. Upon any liquidation, dissolution or winding up of the Company, holders of Series B preferred stock will be entitled to be paid out of the Company's assets, on a parity with holders of the Company's common stock and the Company's Series A preferred stock, an amount equal to \$10,000 per share plus any accrued but unpaid dividends thereon.

Series C preferred stock: On April 1, 2014, the Company entered into a securities purchase agreement to issue 600 shares of Series C Preferred Stock to an investor in exchange for \$6.0 million.

The Series C Preferred Stock is convertible into common stock at a fixed conversion price of \$11.50 per share of common stock. Holders of Series C Preferred Stock are entitled to cumulative dividends at a rate of 5.75% per annum when and if declared by the Board of Directors in its sole discretion. The dividends may be paid in cash or in the form of common stock (valued at 8% below market price, but not to exceed 92% of the lowest closing price during the applicable measurement period), at the discretion of the Board of Directors. The dividend rate on the Series C Preferred Stock is indexed to the Company's stock price and subject to adjustment. In addition, the Series C Preferred Stock contains an embedded dividend provision whereby, conversion or redemption of the preferred stock within 5 years of issuance will require dividends for the full five year period to be paid by the Company in cash or common stock (valued at 8% below market price, but not to exceed 92% of the lowest closing price during the applicable

measurement period).

The Series C Preferred Stock may be converted into shares of common stock at the option of the Company if the closing price of the common stock exceeds \$22.30, as adjusted, for 20 consecutive trading days, or by the holder at any time. The Company has the right to redeem the Series C Preferred Stock at a price of \$10,000 per share, plus any accrued and unpaid dividends, plus the embedded dividend amount (if applicable). The holder of the Series C Preferred Stock may convert to common shares at any time, at no cost, at a conversion price of \$11.50 and a ratio of 1 preferred share into 870 common shares. Conversions by the holder

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are subject to standard ratable anti-dilution adjustments. Upon any conversion (whether at the option of the Company or the holder), the holder is entitled to receive any accrued but unpaid dividends and also any embedded dividend amount (if applicable).

Except as otherwise required by law (or with respect to approval of certain actions), the Series C Preferred Stock shall have no voting rights. Upon any liquidation, dissolution or winding up of the Company, holders of Series C Preferred Stock will be entitled to be paid out of the Company's assets, on a parity with holders of the Company's common stock and the Company's Series A preferred stock, an amount equal to \$10,000 per share plus any accrued but unpaid dividends thereon.

In connection with the securities purchase agreement, the Company entered into a Registration Rights Agreement ("RRA"). The RRA provided that if a resale registration statement was not declared effective on or before (i) the 30th day after April 1, 2014, the Company would be required to issue 30 additional shares of Series C Preferred Stock to the investor; (ii) the 60th day after April 1, 2014, the Company would be required to issue 30 additional shares of Series C Preferred Stock to the investor; and (iii) before the 90th day after April 1, 2014, the Company would be required to issue 30 additional shares of Series C Preferred Stock to the investor. Because the resale registration statement was not declared effective until May 27, 2014, the Company issued 30 additional shares of Series C Preferred Stock to the investor on May 1, 2014.

During the year ended December 31, 2014, the holder of the Series C preferred stock converted 630 preferred shares into 547,827 shares of common stock. As a result of these conversions, the Company paid make-whole dividends in the amount of 2,935,082 shares of common stock in lieu of a cash payment of \$6,841,000. As of December 31, 2014 there were 0 shares of Series C preferred stock outstanding.

Series D and D-1 preferred stock: Refer to Note 9 for descriptions of the Convertible Notes, Series D Preferred Stock, Series D-1 Preferred Stock, and Right Shares.

Series E preferred stock: Refer to Note 11 for descriptions of the Series E Preferred Stock and the Committed Equity Line.

**NOTE 14. EQUITY PLANS AND SHARE-BASED COMPENSATION**

**Stock Option Plan:** The Company's 2005 Stock Option Plan, as amended (the "Stock Option Plan") provides for the grant of incentive or non-statutory stock options to the Company's employees, directors and consultants. Upon recommendation of the Board of Directors, the stockholders approved an increase in the total shares of common stock reserved for issuance under the Stock Option Plan from 3,400,000 to 5,400,000 in 2015.

**Restricted Stock Plan:** The Company's 2008 Restricted Stock Plan, as amended (the "Restricted Stock Plan") was adopted by the Board of Directors and was approved by the stockholders on July 1, 2008. The Restricted Stock Plan initially reserved up to 75,000 shares (as adjusted for the Reverse Stock Split) of the Company's common stock for restricted stock awards and restricted stock units to eligible employees, directors and consultants of the Company. Upon recommendation of the Board of Directors, the stockholders approved an increase in the total shares of common stock reserved for issuance under the Restricted Stock Plan to 2,500,000 shares in 2015.

The Stock Option Plan and the Restricted Stock Plan are administered by the Compensation Committee of the Board of Directors, which determines the terms of the option and share awards, including the exercise price, expiration date, vesting schedule and number of shares. The term of any incentive stock option granted under the Stock Option Plan may not exceed ten years, or 5 years for options granted to an optionee owning more than 10% of the Company's voting stock. The exercise price of an incentive stock option granted under the Option Plan must be equal to or greater than the fair market value of the shares of the Company's common stock on the date the option is granted. An incentive stock option granted to an optionee owning more than 10% of the Company's voting stock must have an exercise price equal to or greater than 110% of the fair market value of the Company's common stock on the date the option is granted. The exercise price of a non-statutory option granted under the Option Plan must be equal to or greater than 85% of the fair market value of the shares of the Company's common stock on the date the option is granted.

**Share-Based Compensation:** The Company measures share-based compensation cost at the grant date based on the fair value of the award and recognizes this cost as an expense over the grant recipients' requisite service periods for all awards made to employees, officers, directors and consultants.

The share-based compensation expense recognized in the Consolidated Statements of Operations was as follows:

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	For the years ended December 31,	
	2015	2014
Share-based compensation cost included in:		
Research, development and manufacturing operations	\$253,298	\$358,626
Selling, general and administrative	603,513	475,691
Total share-based compensation cost	\$856,811	\$834,317

The following table presents share-based compensation expense by type:

	For the years ended December 31,	
	2015	2014
Type of Award:		
Stock Options	\$550,784	\$413,697
Restricted Stock Units and Awards	306,027	420,620
Total share-based compensation cost	\$856,811	\$834,317

Stock Options: The Company recognized share-based compensation expense for stock options of \$551,000 to officers, directors and employees for the year ended December 31, 2015 related to stock option awards, reduced for estimated forfeitures. The weighted average estimated fair value of employee stock options granted for the years ended December 31, 2015 and 2014 was \$0.72 and \$4.25 per share, respectively. Fair value was calculated using the Black-Scholes Option Pricing Model with the following assumptions:

	For the years ended December 31,		
	2015	2014	
Expected volatility	92.6	% 94.6	%
Risk free interest rate	1.7	% 1.9	%
Expected dividends	—	—	
Expected life (in years)	5.9	6.0	

Expected volatility is based on the historical volatility of the Company's stock. The risk-free rate of return is based on the yield of U.S. Treasury bonds with a maturity equal to the expected term of the award. Historical data is used to estimate forfeitures within the Company's valuation model. The Company's expected life of stock option awards is derived from historical experience and represents the period of time that awards are expected to be outstanding. As of December 31, 2015, total compensation cost related to non-vested stock options not yet recognized was \$412,000 which is expected to be recognized over a weighted average period of approximately 1.8 years. As of December 31, 2015, 1,124,785 shares were vested or expected to vest in the future at a weighted average exercise price of \$3.37. As of December 31, 2015, 3,850,831 shares remained available for future grants under the Option Plan. The following table summarizes stock option activity for grants made within the Stock Option Plan:

	Stock Option Shares	Stock Options Weighted Average Exercise Price	Weighted Average Remaining Contractual Life in Years	Aggregate Intrinsic Value
Outstanding at December 31, 2013	154,800	\$17.83	7.81	\$51,160
Granted	105,300	\$5.55		
Exercised	—	\$—		\$—
Forfeited	(15,900)	) \$13.37		
Outstanding at December 31, 2014	244,200	\$12.82	7.84	\$96
Granted	1,497,000	\$0.96		
Exercised	—	\$—		\$—
Forfeited	(263,939)	) 1.55		

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Outstanding at December 31, 2015	1,477,261	\$2.81	8.84	\$—
Exercisable at December 31, 2015	166,786	\$16.15	6.22	\$—

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Restricted Stock: The Company recognized share-based compensation expense related to restricted stock grants of \$306,000 for the year ended December 31, 2015. The weighted average estimated fair value of restricted stock grants for the years ended December 31, 2015 and 2014 was \$0.57 and \$7.06, respectively.

Total unrecognized share-based compensation expense from unvested restricted stock as of December 31, 2015 was \$67,000 which is expected to be recognized over a weighted average period of approximately 0.7 years. As of December 31, 2015, 354,982 shares were expected to vest in the future. As of December 31, 2015, 1,590,893 shares remained available for future grants under the Restricted Stock Plan.

The following table summarizes non-vested restricted stock and the related activity as of and for the years ended December 31, 2015 and 2014:

	Shares	Weighted Average Grant-Date Fair-Value
Non-vested at December 31, 2013	750	\$36.77
Granted	61,955	\$7.06
Vested	(49,815)	)
Forfeited	(1,845)	)
Non-vested at December 31, 2014	11,045	\$7.00
Granted	671,270	0.57
Vested	(272,593)	)
Forfeited	—	
Non-vested at December 31, 2015	409,722	\$0.25

## NOTE 15. INCOME TAXES

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

At December 31, 2015, the Company had \$260,303,000 of cumulative net operating loss carryforwards for federal income tax purposes that were available to offset future taxable income through the year 2035. Under the Internal Revenue Code, the future utilization of net operating losses may be limited in certain circumstances where there is a significant ownership change. The Company prepared an analysis for the year ended December 31, 2012 and determined that a significant change in ownership has occurred as a result of the cumulative effect of the sales of common stock through its offerings. Such change limited the Company's utilizable net operating loss carryforwards to \$173,262,000 for the year ended December 31, 2015. Available net operating loss carryforwards may be further limited in the event of another significant ownership change.

Deferred income taxes reflect an estimate of the cumulative temporary differences recognized for financial reporting purposes from that recognized for income tax reporting purposes. At December 31, 2015 and 2014, the components of these temporary differences and the deferred tax asset were as follows:



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	As of December 31	
	2015	2014
Deferred Tax Asset		
Current:		
Accrued Expenses	\$412,000	\$615,000
Inventory Allowance	253,000	339,000
Other	26,000	16,000
Total Current	691,000	970,000
Non-current:		
Stock Based Compensation-Stock Options and Restricted Stock	1,730,000	1,565,000
Tax effect of NOL carryforward	65,935,000	43,252,000
Depreciation	20,859,000	23,771,000
Amortization	(607,000 )	(513,000 )
Warranty reserve	102,000	53,000
Convertible Note	—	3,170,000
Total Non-current	88,019,000	71,298,000
Net deferred tax asset	88,710,000	72,268,000
Less valuation allowance	(88,710,000 )	(72,268,000 )
Net deferred tax asset	\$—	\$—

In assessing the realizability of deferred tax assets, management considers whether it is more likely than not that some portion or all of the deferred tax assets will be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the periods in which those temporary differences become deductible. Management considers the scheduled reversal of deferred tax liabilities, projected future taxable income and tax planning strategies in making this assessment. Based upon the level of historical losses and projections of future taxable income over the periods in which the deferred tax assets are deductible, management believes it is not "more-likely-than-not" that the Company will realize the benefits of these deductible differences at December 31, 2015. The Company's deferred tax valuation allowance of \$88,710,000 reflected above is an increase of \$16,442,000 from the valuation allowance reflected as of December 31, 2014 of \$72,268,000, resulting from the increase in net loss.

As of December 31, 2015, the Company has not recorded a liability for uncertain tax positions. The Company recognizes interest and penalties related to uncertain tax positions in income tax (benefit)/expense. No interest and penalties related to uncertain tax positions were accrued at December 31, 2015.

The Company's effective tax rate for the years ended December 31, 2015 and 2014 differs from the statutory rate due to the following (expressed as a percentage of pre-tax income):

	2015		2014	
		%		%
Federal statutory rate	35.0	%	35.0	%
State statutory rate	3.5	%	4.2	%
Change in rate	(0.9	)%	2.1	%
Permanent tax differences	(0.3	)%	(2.6	)%
Change in fair value of derivatives	(44.3	)%	(2.8	)%
Deemed interest expense on warrant liability	(0.9	)%	5.0	%
Loss on extinguishment of liabilities	43.7	%	—	%
Other	(0.3	)%	(0.1	)%
Increase in valuation allowance	(35.6	)%	(40.8	)%
	—	%	—	%

## NOTE 16. RELATED PARTY TRANSACTIONS



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TFG Radiant owns approximately 4% of the Company's outstanding common stock as of December 31, 2015. In February 2012, the Company announced the appointment of Victor Lee as President and Chief Executive Officer. Mr. Lee had served on the Company's Board of Directors since November 2011 and is currently the managing director of Tertius Financial Group Pte Ltd, the joint venture partner with Radiant Group in TFG Radiant. In April 2012, the Company appointed the Chairman of TFG Radiant, Mr. Winston Xu (aka Xu Biao), as a member of its Board of Directors.

In June 2012, the Company entered into a supply agreement and a contract manufacturing agreement with TFG Radiant. Under the terms of the contract manufacturing agreement TFG Radiant will oversee certain aspects of the contract manufacturing process related to the Company's EnerPlex™ line of consumer products. The Company compensated TFG Radiant for acting as general contractor in the contract manufacturing process. Under the supply agreement TFG Radiant intends to distribute the Company's consumer products in Asia. In December 2012, the Company entered into a consulting agreement with TGF Radiant for product design, product development and manufacturing coordination activities provided by TFG Radiant to the Company in connection with the Company's line of consumer electronics products. This consulting services agreement was terminated effective March 31, 2014. During the year ended December 31, 2015, the Company made no disbursements to TFG Radiant. During the year ended December 31, 2014, the Company made disbursements to TFG Radiant in the amount of \$518,000. Included within these disbursements is \$200,000 for consulting fees and \$318,000 for finished goods received and deposits for work-in-process. During the years ended December 31, 2015 and 2014, the Company recognized revenue in the amount of \$0 and \$8,000, respectively, for products sold to TFG Radiant under the supply agreement. As of December 31, 2015 and 2014, the Company had \$0 in receivables and deposits with TFG Radiant.

**NOTE 17. COMMITMENTS AND CONTINGENCIES**

On October 21, 2011, the Company was notified that a complaint claiming \$3.0 million for an investment banking fee (the "Lawsuit") was filed by Jefferies & Company, Inc. ("Jefferies") against the Company in New York State Supreme Court in the County of New York. In December 2010, the Company and Jefferies entered into an engagement agreement (the "Fee Agreement") pursuant to which Jefferies was hired to act as the Company's financial advisor in relation to certain potential transactions. In addition, Jefferies claimed an award for attorney's fees and prejudgment interest in the approximate amount of \$1.2 million.

On April 16, 2014, the parties settled the lawsuit where the Company agreed to pay Jefferies a total of \$2.0 million in equal installments over 40 months. The Company has paid \$1,050,000 through December 31, 2015.

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, 2015, \$340,000 was accrued for the long-term portion of this settlement and \$541,000 was recorded as Accrued litigation settlement, current portion, in the Balance Sheets.

On June 30, 2014, the Company entered into a Service Agreement with Swyft, Inc. Swyft will sell consumer products through automated retail stores (kiosks), provide online and mobile retail channels through a website and mobile application, and provide visual and text based advertising through both physical and digital channels. Under the terms of the original agreement, the Company will provide financing to Swyft in the form of a three year 8% convertible note to purchase seventy five (75) automated retail stores at \$4,500 per store, or a total of \$337,500, from ZoomSystems, the manufacturer of automated retail machines. On June 3, 2015, the Company and Swyft entered into an amendment to the agreement which modified the total number of automated retail stores to 38 stores, and modified the convertible note to \$171,000. The convertible loan financing for the thirty eight (38) automated retail stores of \$171,000 was provided by the Company during the third quarter of 2014. The Service Agreement also required that the Company pay a one-time project set-up fee of \$125,000 which was paid during the third quarter of 2014.

Effective July 26, 2015, the Company terminated the Services Agreement with Swyft, Inc. pursuant to the terms outlined in the Services Agreement dated June 30, 2014. Negotiations between Swyft and the Company are ongoing regarding a settlement amount to be paid to the Company. As of December 31, 2015 the Company has determined that \$99,000 of the convertible note is unrecoverable and has been expensed. Swyft has paid the Company \$10,000 to date,

which results in an outstanding convertible note balance of \$62,000 as of December 31, 2015.

**NOTE 18. RETIREMENT PLAN**

On July 1, 2006, the Company adopted a qualified 401(k) plan which provides retirement benefits for all of its eligible employees. Under the plan, employees become eligible to participate at the first entry date, provided they are at least 21 years of

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age. The participants may elect through salary reduction to contribute up to ceilings established in the Internal Revenue Code. The Company will match 100% of the first six percent of employee contributions. In addition, the Company may make discretionary contributions to the Plan as determined by the Board of Directors. Employees are immediately vested in all salary reduction contributions. Rights to benefits provided by the Company's discretionary and matching contributions vest 100% after the first year of service for all employees hired before January 1, 2010. For employees hired after December 31, 2009, matching contributions vest over a three-year period, one-third per year. Payments for 401(k) matching totaled \$333,636 and \$262,467 for the years ended December 31, 2015 and 2014, respectively. Payments for 401(k) matching are recorded under "Research, development and manufacturing operations" expense and "Selling, general and administrative" expense in the Statements of Operations.

NOTE 19. JOINT VENTURE

On December 28, 2013, the Company entered into a definitive agreement for the establishment of a joint venture with the Government of the Municipal City of Suqian in Jiangsu Province, China ("Suqian"). The purpose of the joint venture was to build a factory located in Suqian to manufacture our proprietary photovoltaic modules. The Suqian joint venture project had progressed more slowly than originally anticipated due to a number of factors including short supply of needed technical skills in the Suqian area and other factors affecting the long term viability of the partnership. Accordingly, on August 5, 2015, Suqian and the Company mutually agreed to terminate the joint venture project.

The parties liquidated the joint venture and distributed any available proceeds to the parties pro rata in accordance with the parties' contributions to the joint venture to date. The Company received approximately \$191,000 in cash upon liquidation of the joint venture during the year ended December 31, 2015. The Company's contributions to the joint venture have consisted of (i) \$320,000 in cash and (ii) certain technical and engineering consulting services. The Company does not anticipate having any material current or ongoing liabilities relating to the joint venture or its termination.

NOTE 20. SUBSEQUENT EVENT

Series F Preferred Stock

On January 19, 2016, the Company entered into a securities purchase agreement (the "Series F SPA") with the Private Investor for the sale of \$7,000,000 of the Company's newly designated Series F 7% Convertible Preferred Stock (the "Series F Preferred Stock").

On January 20, 2016, the Company sold and issued 700 shares of Series F Preferred Stock to the Private Investor. The aggregate purchase price of the Series F Preferred was \$7,000,000. On January 20, 2016 the Private Investor paid \$500,000 to the Company. The remaining \$6,500,000 will be paid by the Private Investor to the Company in 14 weekly increments of \$500,000 or \$250,000 beginning January 25, 2016 and ending April 25, 2016. The Private Investor is not required to continue to make such weekly payments to the Company if (i) certain specified equity conditions are not met, (ii) the Company is in default of its obligations under the Series F SPA or the Series F Certificate of Designation, or (iii) the issuance of common stock upon conversion or redemption of the shares of the Series F Preferred Stock being funded would exceed the 19.99% issuance limit and the Company has not yet received stockholder approval for issuances above such limit.

Holders of the Series F Preferred Stock are entitled to dividends in the amount of 7% per annum, payable when, as and if declared by the Board of Directors in its discretion.

Shares of the Series F Preferred Stock (including the amount of any accrued and unpaid dividends thereon) are convertible at the option of the holder into common stock at a fixed conversion price equal to \$0.25 per share. If certain defined default events occur, then the conversion price would thereafter be reduced (and only reduced), to

equal 70% of the average of the two lowest two lowest VWAPs of our common stock for the twenty consecutive trading day period prior to the conversion date.

The Company will make weekly redemptions of shares of Series F Preferred Stock (including any accrued and unpaid dividends thereon) beginning February 15, 2016. If the redemption price is paid by the Company in cash, the number of shares to be redeemed in each weekly increment shall be 250 shares of Series F Preferred Stock, and the redemption price shall be at a price per share equal to \$1,250 plus any accrued but unpaid dividends thereon.

The Company shall have the option to make such redemption payments in shares of common stock provided certain specified equity conditions are satisfied at the time of payment. The number of shares of common stock to be issued would be calculated using a per share price equal to 80% of the one lowest VWAP of our common stock for the ten consecutive trading

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day period prior to the payment date. For redemption payments made in shares of common stock, the Company will redeem either (i) 250 shares of Series F Preferred Stock or (ii) such greater number of shares of Series F Preferred Stock (and also including any accrued and unpaid dividends) that would result upon redemption in the issuance of a number of shares of common stock equal to 12% of the aggregate composite trading volume for the Company's common stock during the preceding calendar week. The Private Investor has the option to take delivery of common stock being issued as a redemption payment on a single payment date or to take delivery of such shares in two tranches on two different days within one week. The Private Investor exercised their option to convert 1,341 Series F Preferred Shares, representing a value of \$1.34 million, resulting in the issuance of 24,746,803 shares of common stock as of the date the consolidated financial statements were available to be issued.

Transition to OTCQB

The Company has been notified by The NASDAQ Stock Market LLC ("NASDAQ") that its pending appeal before the NASDAQ Listing Qualifications Hearing Panel had been denied, and that trading in the Company's common stock was suspended on NASDAQ effective with the open of business on Thursday February 25, 2016.

The Company received a notice from NASDAQ in June 2015 notifying the Company that it had failed to comply with NASDAQ Listing Rule 5550(b)(2), which requires the Company to maintain a minimum "Market Value of Listed Securities" of \$35 million for continued listing on the NASDAQ Capital Market. Such notice also noted that the Company did not meet the alternative requirements under Listing Rules 5550(b)(1) (requiring \$2.5 million of stockholders equity) or 5550(b)(3) (requiring annual net income from continuing operations of \$500,000).

Additionally, the Company received a separate notice from NASDAQ in June 2015 notifying the Company that it had failed to comply with NASDAQ Listing Rule 5550(a)(2), which requires the Company to maintain a minimum closing bid price for the Company's common stock of \$1.00 per share for continued listing on the NASDAQ Capital Market.

Pursuant to the NASDAQ Marketplace Rules, the Company was provided an initial compliance period of 180 calendar days, or until mid-December 2015, to regain compliance with the foregoing requirements. The Company did not regain compliance with these requirements by mid-December 2015, and the Company requested a hearing before the NASDAQ Listing Qualifications Hearings Panel. The hearing was held on February 11, 2016.

At the hearing, the Company presented a plan to regain compliance with all listing rules and requested that the Panel allow the Company additional time within which to regain compliance. The Company's request was denied by the Panel on February 23, 2016.

The Company has been approved for trading on the OTCQB® Venture Market, operated by OTC Markets Group Inc., and its common stock began trading on OTCQB effective February 25, 2016 under its current trading symbol "ASTI."

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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)
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))



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- 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)
- 4.7 Form of Warrant (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed February 20, 2015)
- 4.8 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)

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Exhibit No.	Description
4.9	Form of Warrant (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed February 20, 2015)
4.10	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†	Fifth Amended and Restated 2005 Stock Option Plan (incorporated by reference to Annex A of our definitive proxy statement dated October 22, 2014).†
10.2†	Fifth Amended and Restated 2008 Restricted Stock Plan Stock Option Plan Plan (incorporated by reference to Annex B of our definitive proxy statement dated October 22, 2014).†
10.3	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)) <sup>CTR</sup>
10.4	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)) <sup>CTR</sup>
10.5	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))
10.6	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)) <sup>CTR</sup>
10.7	Service Center Agreement, dated January 17, 2006, between the Company and ITN Energy Systems, Inc., as amended (incorporated by reference to Exhibit 10.6 to our Registration Statement on Form SB-2 filed on January 23, 2006 (Reg. No. 333-131216))
10.8	Administrative Services Agreement, dated January 17, 2006, between the Company and ITN Energy Systems, Inc., as amended (incorporated by reference to Exhibit 10.8 to our Registration Statement on Form SB-2 filed on January 23, 2006 (Reg. No. 333-131216))
10.9	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))

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Exhibit No.	Description
10.10	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) <sup>CTR</sup>
10.11	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)
10.12	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)
10.13	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)
10.14	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)
10.15	Cooperation Agreement, dated December 18, 2007, between the Company and Norsk Hydro Produksjon AS (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on December 19, 2007)
10.16	Equipment Purchase Agreement, dated January 7, 2010, between the Company and ITN Energy Systems, Inc. (incorporated by reference to Exhibit 10.46 to our Annual Report on Form 10-K for the year ended December 31, 2009)
10.17	Securities Purchase Agreement dated as of August 12, 2011 between TFG Radiant Investment Group Ltd. and the Company (incorporated by reference to Exhibit 99.1 to our Current Report on Form 8-K filed on August 15, 2011)
10.18	Stockholders Agreement dated as of August 12, 2011 between TFG Radiant Investment Group Ltd. and the Company (incorporated by reference to Exhibit 99.2 to our Current Report on Form 8-K filed on August 15, 2011)
10.19	Registration Rights Agreement dated as of August 12, 2011 between TFG Radiant Investment Group Ltd. and the Company (incorporated by reference to Exhibit 99.3 to our Current Report on Form 8-K filed on August 15, 2011)
10.20	Joint Development Agreement dated as of August 12, 2011 between TFG Radiant New-Energy Group Ltd. and the Company (incorporated by reference to Exhibit 10.5 to our Quarterly Report on Form 10-Q for the quarter ended September 30, 2011) <sup>CTR</sup>
10.21	Amended and Restated Stockholders Agreement dated as of December 30, 2011 between TFG Radiant Investment Group Ltd. and the Company (incorporated by reference to Exhibit 99.2 to our Current Report on Form 8-K filed on January 5, 2012)

- 10.22 Amended and Restated Registration Rights Agreement dated as of December 30, 2011 between TFG Radiant Investment Group Ltd. and the Company (incorporated by reference to Exhibit 99.3 to our Current Report on Form 8-K filed on January 5, 2012)
- 10.23 Services Agreement dated December 10, 2012 between the Company and TFG Radiant (incorporated by reference to Exhibit 99.1 to our Current Report on Form 8-K filed December 14, 2012)

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Exhibit No.	Description
10.24	Stock Purchase Agreement, dated April 26, 2013, between the Company and Foo Joo Loong (filed as Exhibit 10.1 to our Registration Statement on Form S-3 filed July 1, 2013 (Reg. No. 333-189739))
10.25	Securities Purchase Agreement, dated June 17, 2013, between the Company and Seng Wei Seow (filed as Exhibit 10.2 to our Registration Statement on Form S-3 filed July 1, 2013 (Reg. No. 333-189739))
10.26	Registration Rights Agreement dated June 17, 2013 between the Company and Seng Wei Seow (filed as exhibit 10.2 to our Current Report on Form 8-K filed June 21, 2013)
10.27	First Amendment dated August 7, 2013 to Securities Purchase Agreement and Registration Rights Agreement (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on August 7, 2013)
10.28	Second Amendment dated August 13, 2013 to Securities Purchase Agreement (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on August 15, 2013)
10.29	Framework Agreement, dated July 2, 2013, between the Company and the Government of the Municipal City of Suqian in Jiangsu Province, China (incorporated by reference to Exhibit 10.5 to our Registration Statement on Form S-3 filed August 29, 2013 (Reg. No. 333-190701), as amended)
10.30	Stock Purchase Agreement, dated October 28, 2013 between the Company and Ironridge Technology Co., a division of Ironridge Global IV, Ltd. (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed October 30, 2013)
10.31	Industrial Project Entry and Joint Venture Construction Contract by and between the Registrant and Suqian Economic Development Company, Ltd. dated December 28, 2013*
10.32	Securities Purchase Agreement, dated April 1, 2014, between the Company and Ironridge Global IV, Ltd. (filed as Exhibit 10.1 to our Current Report on Form 8-K April 2, 2014)
10.33	Registration Rights Agreement dated April 1, 2014 between the Company and Ironridge Global IV, Ltd. (filed as exhibit 10.2 to our Current Report on Form 8-K filed April 2, 2014)
10.34†	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) †
10.35	Settlement Agreement and Release dated April 15, 2014 between the Company and Jefferies LLC (filed as Exhibit 10.1 to our Current Report on Form 8-K filed on April 22, 2014)
10.36	Stock Purchase Agreement, dated July 29, 2014, between the Company and SHTARD Enterprise Ltd. (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K July 31, 2014)
10.37	Securities Purchase Agreement, dated August 29, 2014, among the Company, Seng Wei Seow and TFG Radiant Investment Group Ltd. (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed September 4, 2014)

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- 10.38 Securities Purchase Agreement, dated November 14, 2014, between the Company and the Investor named therein (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed November 17, 2014)
- 10.39 Form of Senior Secured Convertible Note (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed November 17, 2014)
- 10.40 Form of Registration Rights Agreement between the Company and the Investor named therein (incorporated by reference to Exhibit 10.4 to our Current Report on Form 8-K filed November 17, 2014)
- 10.41 Form of Security and Pledge Agreement by the Company in favor of the collateral agent named therein (incorporated by reference to Exhibit 10.5 to our Current Report on Form 8-K filed November 17, 2014)
- 10.42 Securities Purchase Agreement, dated February 19, 2015, between the Company and the Investor named therein (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed February 20, 2015)

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Exhibit No.	Description
10.43	Securities Purchase Agreement, dated April 6, 2015, between the Company and TFG Radiant Investment Group Ltd. (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed April 7, 2015)
10.44	Securities Purchase Agreement, dated June 10, 2015, between the Company and TFG Radiant Investment Group Ltd. (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed June 15, 2015)
10.45	Amendment and Exchange Agreement, dated July 22, 2015 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed July 23, 2015)
10.46	Right to Receive Common Stock dated July 22, 2015 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed July 23, 2015)
10.47	Confidential Settlement Agreement and General Release, dated as of May 13, 2015, between the Company and William M. Gregorak (incorporated by reference to Exhibit 10.5 to our Quarterly Report on Form 10-Q filed August 14, 2015)
10.48	Cancellation and Waiver Agreement dated September 4, 2015 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed September 8, 2015)
10.49	Note Purchase Agreement dated September 4, 2015 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed September 8, 2015)
10.50	Security Agreement dated September 4, 2015 (incorporated by reference to Exhibit 10.3 to our Current Report on Form 8-K filed September 8, 2015)
10.51	Secured Convertible Promissory Note for \$1,000,000 dated September 4, 2015 (incorporated by reference to Exhibit 10.4 to our Current Report on Form 8-K filed September 8, 2015)
10.52	Secured Convertible Promissory Note for \$500,000 dated September 4, 2015 (incorporated by reference to Exhibit 10.5 to our Current Report on Form 8-K filed September 8, 2015)
10.53	Joinder to Note Purchase Agreement dated September 28, 2015 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed September 28, 2015)
10.54	Secured Convertible Promissory Note for \$500,000 dated September 28, 2015 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed September 28, 2015)
10.55	Amendment No. 1 dated October 8, 2015 to Cancellation and Waiver Agreement dated September 4, 2015 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed October 9, 2015)
10.56	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)

- 10.57 Series E Registration Rights Agreement, dated November 4, 2015, between the Company and Redwood Management, LLC (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed November 10, 2015)
- 10.58 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)
- 10.59 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)
- 10.60 Amendment No. 2 dated November 22, 2015 to Cancellation and Waiver Agreement dated September 4, 2015 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed November 23, 2015)



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Exhibit No.	Description
10.61†	Sixth Amended and Restated 2005 Stock Option Plan (incorporated by reference to Annex C of our definitive proxy statement dated May 1, 2015).†
10.62†	Sixth Amended and Restated 2008 Restricted Stock Plan Stock Option Plan Plan (incorporated by reference to Annex B of our definitive proxy statement dated May 1, 2015).†
10.63	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)
23.1	Consent of Hein & Associates LLP*
31.1	Chief Executive Officer Certification pursuant to section 302 of the Sarbanes-Oxley Act of 2002*
31.2	Chief Financial Officer Certification pursuant to section 302 of the Sarbanes-Oxley Act of 2002*
32.1	Chief Executive Officer Certification pursuant to section 906 of the Sarbanes-Oxley Act of 2002*
32.2	Chief Financial Officer Certification pursuant to section 906 of the Sarbanes-Oxley Act of 2002*
101.INS	XBRL Instance Document*
101.SCH	XBRL Taxonomy Extension Schema Document*
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.