Ascent Solar Technologies, Inc.
Form 424B5
February 23, 2015
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Registration No. 333-199214

PROSPECTUS SUPPLEMENT
(To the Prospectus dated October 16, 2014)

ASCENT SOLAR TECHNOLOGIES, INC.
$2,500,000
of
Series D-1 Preferred Stock and Common Stock

We are offering 3,000 of our newly designated Series D-1 convertible preferred stock ("Series D-1 Preferred Shares") at a purchase price for each Series D-1 Preferred Share of $1,000 per share. The Series D-1 Preferred Shares will be convertible into common stock at a fixed conversion price of $2.31 per share of common stock. For a more detailed description of the terms of the Series D-1 Preferred Shares, see the section entitled "Description of Series D-1 Preferred Stock" beginning on page S-22 of this prospectus supplement.

The Series D-1 Preferred Shares will not be listed on any national securities exchange. There is no established public trading market for the Series D-1 Preferred Shares, and we do not expect a market to develop.

Our common stock is traded on the Nasdaq Capital Market under the symbol "ASTI." On February 20, 2015 the last reported sale price of our common stock on the Nasdaq Capital Market was $1.70 per share.

As of February 20, 2015, the aggregate market value of our outstanding common stock held by non-affiliates was approximately $38,421,027, which was calculated based on 23,110,557 shares of outstanding common stock, of which approximately 3,995,618 shares were held by affiliates, and a price per share of $2.01, which was the closing price of our common stock on the Nasdaq Capital Market on February 19, 2015. Pursuant to General Instruction I.B.6 of Form S-3, in no event will we sell securities registered on this registration statement in a public primary offering with a value exceeding more than one-third of the aggregate market value of our common stock held by non-affiliates in any 12-month period so long as the aggregate market value of our outstanding common stock held by non-affiliates remains below $75.0 million. During the 12 calendar months prior to and including the date of this prospectus supplement, we have offered and sold $4,218,267 of securities pursuant to General Instruction I.B.6 of Form S-3.

We are selling the securities in this offering directly to investors. See "Plan of Distribution" beginning on page S-20 of this prospectus supplement for further information.

We have retained WestPark Capital, Inc. (the "Placement Agent") to act as placement agent in connection with this offering to use its "reasonable best efforts" to solicit offers to purchase the Series D-1 Preferred Shares. See "Plan of Distribution" beginning on page S-20 of this prospectus supplement for more information regarding this arrangement.

Investing in our securities involves a high degree of risk. See "Risk Factors" beginning on page S-7 of this prospectus supplement for more information.

	Per Unit ($)	Total ($)
Public offering price	$1,000	$2,500,000
Placement agent fees (1)	$45	$112,500
Proceeds, before expenses, to us	$955	$2,387,500

(1) In addition, we have agreed to sell to the Placement Agent shares of common stock equal to the quotient of 2% of the gross proceeds of this offering divided by $1.70 and to reimburse certain of the Placement Agent's expenses. See "Plan of

Distribution” beginning on page S-20 of this prospectus for more information on this offering and the placement agent arrangements

The Placement Agent is not purchasing or selling any of our securities pursuant to this prospectus supplement or the accompanying prospectus. We expect that delivery of the securities being offered pursuant to this prospectus supplement will be made to purchasers on or about February 25, 2015, subject to satisfaction of certain conditions.

WestPark Capital, Inc.

These are speculative securities. Investing in these securities involves significant risks. You should purchase these securities only if you can afford a complete loss of your investment. See “Risk Factors” beginning on page S-7 of this prospectus supplement.

NEITHER THE SECURITIES AND EXCHANGE COMMISSION NOR ANY STATE SECURITIES COMMISSION HAS APPROVED OR DISAPPROVED OF THESE SECURITIES OR PASSED UPON THE ADEQUACY OR ACCURACY OF THIS PROSPECTUS SUPPLEMENT OR THE ACCOMPANYING PROSPECTUS. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

Our principal executive offices are located at 12300 North Grant Street, Thornton, Colorado 80241.

The date of this prospectus supplement is February 23, 2015.

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ABOUT THIS PROSPECTUS SUPPLEMENT

This document is in two parts. The first part is this prospectus supplement, which describes the specific terms of the offering and also adds to and updates information contained in the accompanying prospectus and the documents incorporated by reference into this prospectus supplement and the accompanying prospectus. The second part, the accompanying prospectus dated October 16, 2014, including the documents incorporated by reference, provides more general information. Generally, when we refer to this prospectus, we are referring to both parts of this document combined. To the extent there is a conflict between the information contained in this prospectus supplement, on the one hand, and the information contained in the accompanying prospectus or in any document incorporated by reference that was filed with the Securities and Exchange Commission, or SEC, before the date of this prospectus supplement, on the other hand, you should rely on the information in this prospectus supplement. If any statement in one of these documents is inconsistent with a statement in another document having a later date, the statement in the document having the later date modifies or supersedes the earlier statement. You should read this prospectus supplement and the accompanying prospectus, including the information incorporated by reference and any free writing prospectus that we may provide to you in connection with this offering, in their entirety before making an investment decision.

You should rely only on the information contained or incorporated by reference in this prospectus supplement and the accompanying prospectus, along with the information contained in any free writing prospectus that we may provide to you in connection with this offering. We have not authorized anyone to provide you with different or additional information. If anyone provides you with different or inconsistent information, you should not rely on it.

You should assume that the information appearing in this prospectus supplement, the accompanying prospectus, the documents incorporated by reference in this prospectus supplement and the accompanying prospectus, and in any free writing prospectus that we may provide to you in connection with this offering is accurate only as of the respective dates of those documents. Our business, financial condition, results of operations and prospects may have changed since those dates.

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PROSPECTUS SUPPLEMENT SUMMARY

The following summary highlights selected information contained elsewhere in this prospectus supplement, the accompanying prospectus and the documents incorporated by reference in this prospectus supplement and the accompanying prospectus. While we believe that this summary highlights some of the most important information about Ascent Solar Technologies, Inc. and this offering, you should carefully read this entire prospectus supplement, the accompanying prospectus and the documents that they incorporate by reference. You should pay special attention to the "Risk Factors" section of this prospectus supplement beginning on page S-7 and in our Annual Report on Form 10-K for the year ended December 31, 2013 and each subsequently filed annual report on Form 10-K and quarterly report on Form 10-Q. In this prospectus, references to "we," "us," "our," "Ascent," "Ascent Solar" or the "Company" mean As Solar Technologies, Inc.

Overview

We are a development stage company formed in October 2005 to commercialize flexible photovoltaic ("PV") modules using proprietary technology. Our 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 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, building materials, defense, transportation and space applications, as well as other products and applications that may emerge.

Recent Strategic Developments

Introduction of EnerPlex™ Consumer Products

In February 2012, we began to reposition our business model with an immediate focus on developing downstream consumer products. In June 2012, we launched our EnerPlex™ line of consumer products, and introduced our first product, the Surfr™, under the EnerPlex brand. The Surfr™ is 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, battery. The charger 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 take the power of the sun with them while on the go.

During 2013, our EnerPlex brand rapidly expanded with the addition of two new product series as well as over fifteen new products. In the beginning of 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 2013. Furthermore, in October 2013, we released our first series of solar integrated backpacks, the Packr, for consumer use. The Packr is a fashion forward and functional pack perfect for charging mobile electronic devices while on the go. Also in October 2013, we introduced the Surfr battery and solar case for the Samsung Galaxy S 4, and in December 2013, we introduced the Surfr battery and solar case for Apple’s iPhone 5. In January 2015, we introduced the Surfr battery and solar case for Apple's iPhone® 6. In addition, we added an assortment of useful accessories to our product lines, 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

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anywhere in the world. During 2014, we introduced the Jumpr Slate 10K and 5K, which are thin lithium polymer portable power banks.

We continue to aggressively pursue 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, www.brookstone.com, www.newegg.com as well as many others including our own e-commerce platform at www.goenerplex.com. The April 2013 placement of EnerPlex products at Fry's Electronics, a US West Coast consumer electronics retailer, represented the company's first domestic retail presence. EnerPlex products are carried in all of Fry's 35 stores across 9 states. Each store is provided with EnerPlex branded merchandising assets to highlight the uniqueness of our product lines. In February 2015, we announced that our EnerPlex products would be available in over 300 Verizon Wireless stores through our retail partner The Cellular Connection. We believe this multi-faceted strategy will give the EnerPlex™ brand the broadest exposure for the amount of investment and make our products immediately available to large numbers of consumers.

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 of our products due to 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.

Suqian Joint Venture

On July 2, 2013, we entered into a framework agreement for the establishment of a joint venture (the "Joint Venture") with the Government of the Municipal City of Suqian in Jiangsu Province, China ("Suqian"). On December 28, 2013 we signed the definitive agreement with Suqian which further specified the terms and time frame of the Joint Venture.

Under this definitive agreement, Suqian will provide cash of approximately $32.5 million, as well as the five year rent-free use of approximately 331,000 square feet of factory and office space in the Suqian Economic and Industrial Development Science Park. The Joint Venture will build a 100MW factory over six years to manufacture our proprietary thin-film CIGS photovoltaic modules on flexible polyimide in addition to related consumer products.

We shall purchase the factory within the first 5 years at the initial construction cost, and shall also purchase Suqian's ownership interest in the Joint Venture within 5 years at 1.5 times of Suqian's cash investment.

In the initial phase of the project, we and Suqian will form the Joint Venture in which Suqian will inject approximately $4.8 million in cash and have majority interest of 75%. We shall contribute approximately $1.6 million in cash and hold a minority interest of 25%. Subsequently, Suqian will further contribute the balance of the committed $32.5 million while we will contribute our proprietary technology and intellectual property, as well as certain equipment from our Colorado facility, thereby increasing our shareholdings progressively up to 80% ownership.

Under the definitive agreement, Suqian will also provide a package of additional incentives including:
- A 5-year corporate tax holiday and a further 50% tax rebate over the following 5 years,
- Full rebate of value-added tax for the first 2 years and 50% rebate for the subsequent 3 years, and
- Free accommodations for up to 3 years for key scientists, engineers and management personnel of the Joint Venture.

As phase two of this program is implemented, we will have the option to purchase approximately 215,000 square feet of land zoned for commercial usage at a favorable price at 10% above the government's prevailing cost.

The implementation of the definitive agreement with Suqian, including the formation of the Joint Venture, will be subject to a number of contractual conditions and governmental approvals. Such conditions and approvals must be obtained in the future in order for the Suqian factory to be built and become operational.

On September 17, 2014, we were granted the Certificate of Approval for Establishment with Foreign Investment in the People's Republic of China, and on September 24, 2014, the Company was officially granted the business license to operate the Joint Venture. These documents were the main gating factors for starting the operations of the Joint Venture. Several activities, including the cash injection by Suqian into the Joint Venture and the transfer of equipment by the Company, will begin during the forth quarter of 2014. We expect that certain parts of the Joint Venture's factory will be in operation by the end of the second quarter of 2015.

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Need for Additional Capital

Since inception, we have incurred significant losses. We expect to continue to incur net losses in the near term. For the nine month period ended September 30, 2014, our cash used in operations was $20.7 million. For the year ended December 31, 2013, our cash used in operations was $20.3 million. At September 30, 2014, we had cash and equivalents of $1.0 million. At December 31, 2013, we had cash and equivalents of approximately $3.3 million.

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. In 2014, we will incur a base level of maintenance capital expenditures and relatively minor improvements to the existing asset base. Additional projected product revenues are not anticipated to result in a positive cash flow position for the year 2014 overall. We will need to raise additional capital in order to continue our current level of operations in 2015. We continue to accelerate sales and marketing efforts related to our consumer products strategy through increased hiring and expansion of our sales channel. We are exploring opportunities to secure additional financing through strategic or financial investors, but there is no assurance that 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.

Going Concern Qualification

On March 28, 2014, we filed our Annual Report on Form 10-K with the Securities and Exchange Commission (the “SEC”), which Annual Report included our audited financial statements for the year ended December 31, 2013. The report of our independent registered public accounting firm on such financial statements contained an explanatory paragraph expressing substantial doubt regarding our ability to continue as a going concern.

The full text of the report of our independent registered public accounting firm is contained in our Annual Report on Form 10-K for the year ended December 31, 2013, which is incorporated by reference into this prospectus.

Recent Financial Results

On February 19, 2015, we announced our preliminary estimated fourth quarter and full year revenue results for the periods ended December 31, 2014:

- Revenue of $2.4 million for the fourth quarter of 2014;
- EnerPlex™ branded consumer product revenue of $2.3 million for the fourth quarter of 2014;
- Revenue of $5.3 million for 2014; and
- EnerPlex™ branded consumer product revenue of $5.0 million for 2014.

The preliminary, unaudited information provided above is based on the Company’s current estimate of results from operations for the fourth quarter of 2014 and remains subject to change based on the Company’s quarterly closing procedures including our execution of our internal controls over financial reporting, or the subsequent occurrence or identification of events prior to the issuance of the complete quarterly and annual financial statements.

Corporate Information

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

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This Offering

Securities Offered	$2,500,000 of our Series D-1 Preferred Shares. Up to 1,082,251 shares of common stock issuable upon conversion of the Series D-1 Preferred Shares. Also, additional shares of common stock that we may choose to issue in payment of dividends on the Series D-1 Preferred Shares.
Offering Price	The per share purchase price for the Series D-1 Preferred Shares will be $1,000.
Manner of Offering	The Series D-1 Preferred Shares will be issued directly to the buyer (the "Purchaser") under that certain Securities Purchase Agreement, dated as of February 19, 2015 (the "Purchase Agreement"), among the Purchaser and us. We are offering 2,500 Series D-1 Preferred Shares to the Purchaser at a purchase price for each Series D-1 Preferred Share of $1,000 per share. We expect the sale of Series D-1 Preferred Shares to close shortly after the date of this prospectus supplement.
Use of Proceeds	We intend to use the net proceeds from this offering for working capital, including to fund the continued operations and expansion of our retail channels for our EnerPlex products in the U.S., Europe and Asia, brand building, as well as the launch of additional EnerPlex products. See "Use of Proceeds" on page S-20. We will not receive any proceeds resulting from the sale by the Purchaser of common stock issued to them in respect of the Series D-1 Preferred Shares offered hereby.
Market for the Series D-1 Preferred Shares	There is no established public trading market for the Series D-1 Preferred Shares and we do not expect a market to develop. In addition, we do not intend to apply for listing of the Series D-1 Preferred Shares on any securities exchange.
Market for Our Common Stock	Our common stock is quoted on The Nasdaq Capital Market under the symbol "ASTI".
Risk Factors	This investment involves a high degree of risk. See "Risk Factors" beginning on page S-7 of this prospectus supplement as well as the other information included in or incorporated by reference in this prospectus supplement and the accompanying prospectus for a discussion of risks you should consider carefully before making an investment decision.
Concurrent Private Placement of Warrants	Concurrently with this offering, through a private placement we are selling to the Purchaser pursuant to the Purchase Agreement warrants (the "Warrants") to purchase up to 541,126 shares of common stock of the Company at an exercise price of $2.31 per share of common stock. The Warrants were offered and sold to the Purchaser in reliance upon exemptions from the registration requirements under Section 4(a)(2) under the Securities Act of 1933, as amended ("Securities Act"), and Rule 506 of Regulation D promulgated thereunder. We will not receive any additional gross proceeds from the sale of the Warrants.

The Warrants are exercisable on and after the six month anniversary of the closing date of the sale of the Series D-1 Preferred Shares and the Warrants (the “Closing Date”) and expire on the fifth anniversary of such initial exercisability date. Any funds received by us from exercise of the Warrants would be in addition to the proceeds received by us from the Purchaser on the Closing Date.

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19.99% Cap	We are prohibited from issuing shares of common stock in connection with the Series D-1 Preferred Shares and the Warrants in excess of 19.99% of the issued and outstanding shares of our common stock immediately prior to the transaction unless stockholder approval of such issuance of securities is obtained as required by NASDAQ Listing Rule 5635(d). Under the Purchase Agreement, we are required to seek stockholder approval of issuances of our common stock in connection with the Purchase Agreement in excess of such 19.99% limit at a stockholders meeting to be held no later than July 31, 2015. We intend to obtain such stockholder approval at our 2015 annual stockholders meeting.
Series D-1 Preferred Shares	
Rank	The Series D-1 Preferred Shares, with respect to dividend rights and rights upon our liquidation, dissolution or winding up, ranks: (a) senior with respect to all shares of capital stock of the Company, except for our Series A Preferred Stock that is currently issued and outstanding (the “Existing Preferred Securities”) and (b) on a parity with respect to the Existing Preferred Securities.
Dividends	Holders of the Series D-1 Preferred Shares will be entitled to dividends in the amount of 7% per annum, subject to an increase to 15% per annum upon the occurrence and continuance of certain triggering events. Dividends are payable monthly in shares of common stock or cash, at our option. Dividends are computed on the basis of a 360-day year and twelve 30-day months and are payable in arrears monthly and are compounded monthly.
Conversion Rights	The Series D-1 Preferred Shares are convertible into common stock at an initial fixed conversion price of $2.31 per share of common stock (the “Conversion Price”), subject to certain adjustments. The Series D-1 Preferred Shares may be converted into shares of common stock at any time at the option of the holder. The Series D-1 Preferred Shares may also be converted into shares of common stock at our option if the closing price of our common stock exceeds the Conversion Price by 200% for fifteen consecutive trading days. In addition, a holder of the Series D-1 Preferred Stock has the option to convert a portion of the Series D-1 Preferred Stock into shares of Common Stock at an “Alternate Conversion Price” equal to the lowest of (i) the Conversion Price then in effect and (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. If and whenever on or after the Closing Date, we issue or sell 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.

Optional Redemption by the Company	We may redeem all, but not less than all, of the Series D-1 Preferred Shares outstanding at any time, provided that we meet certain equity conditions. In the case of an optional redemption of Series D-1 Preferred Shares by us, the Series D-1 Preferred Shares shall be redeemed in cash at a price with a redemption premium of 120% calculated by the formula specified in the Certificate of Designations, Preferences and Rights of the Series D-1 Convertible Preferred Stock (the "Series D-1 Preferred Stock Certificate of Designations").

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Triggering Events	The Series D-1 Preferred Stock Certificate of Designations provides that “Triggering Events” include, but are not limited to: (i) the Series D-1 Preferred Shares, or shares of our common stock issuable upon conversion of the Series D-1 Preferred Shares, not being freely tradable without restriction, (ii) suspension from trading of our common stock on the Nasdaq Capital Market or other applicable stock exchange; (iii) our failure to make dividend payments when due; (iv) bankruptcy or insolvency of the Company; (v) our breach of the Purchase Agreement, Warrants or Series D-1 Preferred Stock Certificate of Designations under certain circumstances, and (vi) any default under our outstanding $32 million aggregate principal amount of Senior Secured Convertible Notes due 2018 (the “Notes”). If a triggering event occurs, we may be required to redeem all or any number of the Series D-1 Preferred Shares in cash at a price with a redemption premium of 125% calculated by the formula specified in the Series D-1 Preferred Stock Certificate of Designations.
Change of Control	The Series D-1 Preferred Stock Certificate of Designations prohibits us from entering into transactions involving a change of control, unless the successor entity is a publicly traded corporation that assumes all of our obligations under the Series D-1 Preferred Stock Certificate of Designations in a written agreement approved by holders of the Series D-1 Preferred Shares. In the event of transactions involving a change of control, a holder of Series D-1 Preferred Shares will have the right to require us to redeem all or any number of the Series D-1 Preferred Shares it holds in cash at a price with a redemption premium of 125% calculated by the formula specified in the Series D-1 Preferred Stock Certificate of Designations.
Liquidation Value	Upon our liquidation, dissolution or winding up, holders of Series D-1 Preferred Shares will be entitled to be paid out of our assets, before any amount shall be paid to the holders of any other shares of our capital stock (except for our existing and outstanding Series A preferred stock), an amount per Series D-1 Preferred Share equal to the sum of (i) the Black Scholes Value (as defined in the Warrants) with respect to the outstanding portion of all Warrants held by the holder and (ii) the greater of (A) 120% of the conversion amount thereof and (B) the amount per share such holder would receive if such holder converted such Series D-1 Preferred Shares into common stock immediately prior to the date of payment.
Voting Rights	Except as otherwise required by law (or with respect to approval of certain actions), the Series D-1 Preferred Shares will not have voting rights.
Limitations on Beneficial Ownership	Series D-1 Preferred Shares may not be converted, and shares of our common stock may not be issued in connection therewith, if, after giving effect to the conversion or issuance, the holder together with its affiliates would beneficially own in excess of 4.99% of the outstanding shares of our common stock. At each holder’s option, the cap may be raised or lowered to any other percentage not in excess of 9.99%, except that any increase will only be effective upon 61-days’ prior notice to us.

Please see “Description of Series D-1 Preferred Stock” beginning on page S-22 for more information.

RISK FACTORS

Investing in our securities involves a high degree of risk. Before making an investment in our securities, you should carefully consider the risk factors set forth below and discussed under the section captioned “Risk Factors” contained in our Annual Report on Form 10-K for the year ended December 31, 2013 and each subsequently filed annual report on Form 10-K and quarterly report on Form 10-Q, which are incorporated by reference in this prospectus supplement and the accompanying prospectus in their entirety, together with the other information contained in this prospectus supplement, the accompanying prospectus and the documents we have incorporated by reference. If one or more of the possibilities described below or in the “Risk Factors” section of our Annual Report on Form 10-K for the year ended December 31, 2013 or Forms 10-K or Forms 10-Q filed thereafter actually occur, our operating results and financial condition would likely suffer and the trading price of our common stock could fall, causing you to lose some or all of your investment in the securities we are offering.

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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 plan to continue manufacturing at our current facilities and to expand our production capacity as part of our Joint Venture with Suqian. 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;
- our ability to complete the formation of our Suqian JV and subsequent installation of manufacturing equipment and ramp to production;
- 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 original equipment manufacturers ("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 NASDAQ Capital Market;
- our ability to achieve projected operational performance and cost metrics;
- our ability to enter into commercially viable licensing, joint venture, or other commercial arrangements; and
- availability of raw materials.

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

We have to date incurred net losses and may be unable to generate sufficient sales in the future to become profitable.

We incurred a net loss applicable to common stockholders of $36.1 million for the year ended December 31, 2013 and $39.5 million for the nine months ended September 30, 2014. We reported an accumulated deficit of $287.4 million as of September 30, 2014. 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.

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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 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, through our strategic alliances, or our Suqian joint venture, 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, our new joint venture with Suqian and at contract manufacturers in Asia. Successful operations will require substantial engineering and manufacturing resources and is 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

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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.

The Company will need to raise additional capital to continue the current level of operations through 2014 and into 2015. Th