

Ascent Solar Technologies, Inc.
Form S-3
December 29, 2011
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As filed with the Securities and Exchange Commission on December 29, 2011
Registration No. 333-

SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM S-3

REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

ASCENT SOLAR TECHNOLOGIES, INC.
(Exact name of registrant as specified in its charter)

Delaware
(State or jurisdiction of
incorporation or organization)

20-3672603
(IRS Employer
Identification No.)

12300 North Grant Street
Thornton, Colorado 80241
(720) 872-5000

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Gary Gatchell
12300 North Grant Street
Thornton, Colorado 80241
(720) 872-5000

(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:
James Carroll
Charles Cotter
Faegre & Benson LLP
1470 Walnut Street, Suite 300
Boulder, Colorado 80304
(303) 447-7700

Approximate date of commencement of proposed sale to the public: From time to time after this registration statement becomes effective as determined by market conditions and other factors.

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If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box:

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box:

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please

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check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box:

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box:

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. (Check one):

Large accelerated filer <input type="radio"/>	Accelerated filer <input type="radio"/>	Non-accelerated filer <input type="radio"/>	Smaller reporting company <input checked="" type="radio"/>
		(Do not check if a smaller reporting company)	

CALCULATION OF REGISTRATION FEE

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Title of Each Class of Securities to Be Registered	Amount to be Registered (1)	Proposed Maximum Aggregate Offering Price (1)(2)	Amount of Registration Fee (3)
Common Stock, par value \$0.0001			
Preferred Stock, par value \$0.0001			
Warrants			
TOTAL:	\$ 25,000,000	\$ 25,000,000	\$ 2,865
Fee amount applied from Prior Registration Statement			\$ 2,865
Fee due with this filing			\$ —

(1) There are being registered under this registration statement such indeterminate number of shares of common stock, preferred stock, and such indeterminate number of warrants of the registrant, all at indeterminate prices, as shall have an aggregate initial offering price not to exceed \$25,000,000 or the equivalent amount denominated in one or more foreign currencies. Any securities registered under this registration statement may be sold separately or as units with other securities registered under this registration statement. The securities being registered also include such indeterminate number of shares of common stock or preferred stock, or warrants as may be issued upon conversion of, or in exchange for, or upon exercise of, convertible or exchangeable securities as may be offered pursuant to any prospectus or prospectus supplement filed with this registration statement.

(2) Estimated solely for the purpose of calculating the registration fee in accordance with Rule 457(o) of the Securities Act of 1933.

(3) The registration fee has been calculated pursuant to Rule 457(o) under the Securities Act of 1933. The Company still has \$97,897,228 of Securities registered but remaining unsold under registration statement No. 333-156665 (the "Prior Registration Statement"). Pursuant to Rule 415(a)(6) under the Securities Act, the Company is including in this registration statement \$25,000,000 of the Securities remaining unsold under the Prior Registration Statement and for which the registration fee has previously been paid. In connection with the Prior Registration Statement, the Registrant paid an aggregate registration fee of \$5,895, of which \$3,847 applies to such amount of unsold Securities. Pursuant to Rule 415(a)(6) under the Securities Act, the Company is applying \$2,865 of such amount to the registration fee for the \$25,000,000 of Securities being registered under this Registration Statement. As a result, no additional registration fee is due in connection with the filing of this registration statement.

Pursuant to Rule 415(a)(6), the Prior Registration Statement will be deemed terminated as of the date of effectiveness of this Registration Statement.

The Registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until the registration statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

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The information in this prospectus is not complete and may be changed. These securities may not be sold until the related registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED December 29, 2011

PROSPECTUS

ASCENT SOLAR TECHNOLOGIES, INC.

Up to \$25,000,000

COMMON STOCK
PREFERRED STOCK
WARRANTS

We may sell from time to time the securities offered by this prospectus at prices and on terms to be determined at or prior to the time of each sale. We will describe the specific terms and amounts of the securities offered in a prospectus supplement for each sale. You should carefully read this prospectus and any prospectus supplement before you invest. This prospectus may not be used to sell securities unless accompanied by a prospectus supplement.

Our common stock is traded on the Nasdaq Global Market under the symbol "ASTI." On December 29, 2011, the last reported sale price of our common stock on the Nasdaq Global Market was \$0.43 per share.

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

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 2.

This prospectus may not be used to consummate a sale of any securities unless accompanied by a prospectus supplement.

The securities offered by this prospectus may be sold directly by us to investors, through agents designated from time to time or to or through underwriters or dealers, on a continuous or delayed basis. For additional information on the methods of sale, you should refer to the section entitled "Plan of Distribution" in this prospectus. If any agents or underwriters are involved in the sale of any securities with respect to which this prospectus is being delivered, the names of such agents or underwriters and any applicable fees, commissions, discounts and over-allotment options will be set forth in a prospectus supplement. The price to the public of such securities and the net proceeds that we expect to receive from such sale will also be set forth in a 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. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

The date of this prospectus is _____, 2012

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In this prospectus, references to “we,” “us,” “our,” “Ascent,” “Ascent Solar” or the “Company” mean Ascent Solar Technologies, Inc.

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About This Prospectus

This prospectus is part of a Registration Statement on Form S-3 that we filed with the Securities and Exchange Commission (“SEC”) using a “shelf” registration process. Under this shelf process, we may sell any combination of securities described in this prospectus in one or more offerings, up to the total dollar amounts appearing on the cover of this prospectus. This prospectus provides you with a general description of the securities we may offer. Each time we offer the securities, a prospectus supplement will be provided that will contain specific information about the terms of the offering, including the type(s), amount(s) and price(s) of the securities being offered and the plan of distribution. The prospectus supplement for a particular offering may also add, update or change information contained in this prospectus. In addition, any prospectus supplement relating to a particular offering may be updated or supplemented. You should read carefully both this prospectus and any applicable prospectus supplement together with the additional information about us to which we refer you in the section of this prospectus entitled “Where You Can Find More Information.” This prospectus may not be used to consummate a sale of any securities unless accompanied by a prospectus supplement.

You should rely only on the information contained or incorporated by reference in this prospectus or a prospectus supplement. We have not authorized any other person to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. You should not assume that the information appearing in this prospectus, any prospectus supplement or any document incorporated by reference is accurate as of any date other than its date, regardless of the time of delivery of the prospectus or prospectus supplement or any sale of securities. Our business, financial condition, results of operations and prospects may have changed since those dates.

PROSPECTUS SUMMARY

This summary highlights information contained in this prospectus. While we believe that this summary highlights some of the most important information about Ascent Solar Technologies, Inc. and this offering, you should read this entire prospectus and the documents incorporated by reference carefully, including “Risk Factors,” before deciding to invest in our securities.

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”) by our founder and core scientific team 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, plastic substrate 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 provide us with significant advantages over both the crystalline silicon based PV manufacturers that currently dominate the PV market, as well as other thin-film PV manufacturers that use rigid and/or heavier substrate materials such as glass, stainless steel or other metals. Our target markets include the building integrated PV (“BIPV”) market, the building applied PV (“BAPV”) market, the electronic integrated PV (“EIPV”) market, the military and governmental portable power markets and the space and near-space markets.

We completed construction of our FAB1 production line in December 2007. In 2008 we began placing purchase orders for equipment to be installed in our second production facility (“FAB2”) and purchased an existing building in Thornton, Colorado. During 2008 and early 2009, the building was renovated to accommodate our manufacturing requirements. In 2009, we began receiving production equipment in FAB2 and started qualification of the equipment.

Throughout 2010, we continued qualification of the equipment in FAB2 and began production of PV modules. Currently we are in limited production utilizing a combination of equipment from our FAB1 and FAB2 production lines. We are qualifying equipment that has been delivered and additional equipment is scheduled for delivery in 2012 and we have adjusted our utilization of equipment based on our near term forecast. Under our current business plan, we expect losses to continue until annual production reaches approximately 30 MW or more. We intend to augment our own manufacturing capabilities by licensing our proprietary manufacturing processes to others. We plan to continue manufacturing at our current facilities; however, our plans are to have significant future production capacity enabled through partnerships, joint ventures or other commercial or licensing arrangements. To date, we have financed our operations primarily through public and private equity financings. On August 12, 2011, we entered into an investment and strategic alliance with TFG Radiant Investment Group Ltd. and its affiliates ("TFG Radiant"), pursuant to which TFG Radiant made an initial \$7.36 million equity investment in us, and, in

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connection with such investment, received an option to acquire an additional 9,500,000 shares our common stock at an exercise price of \$1.55 per share.

In addition, in exchange for the grant by the Company of exclusive rights to manufacture and sell solar devices based on the Company's proprietary CIGS PV technology in East Asia (comprised of China, Taiwan, Hong Kong, Thailand, Malaysia, Indonesia, Korea and Singapore), TFG Radiant has committed to invest \$165 million to build an initial fab in East Asia using the Company's proprietary processes for manufacturing flexible CIGS PV, will provide consulting fees to the Company in connection with installation and commissioning of any fabs in East Asia, will provide license fees, royalty payments, and ownership interest in all East Asia fabs, and subject to the East Asia fabs meeting certain milestones related to production and costs, will provide over time incentive payments to the Company of up to \$250 million.

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.

This Offering

Through this prospectus, we may from time to time offer and sell shares of our common stock, shares of our preferred stock, warrants, and the securities issuable upon exercise or conversion of any of those securities. We may offer and sell these securities separately or together as units, but the aggregate initial offering price will not to exceed \$25,000,000 or the equivalent amount denominated in one or more foreign currencies. Each time we offer and sell the securities, a prospectus supplement will be provided that will contain specific information about the terms of the offering, including the type(s), amount(s) and price(s) of the securities being offered and the plan of distribution employed.

FORWARD-LOOKING STATEMENTS

This prospectus includes “forward-looking statements” within the meaning of the Private Securities Litigation Reform Act of 1995. 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 “Prospectus Summary.” When used in this prospectus, the words “estimates,” “expects,” “anticipates,” “projects,” “plans,” “intends,” “believes,” “forecasts,” “foresees,” “likely,” “may,” “should,” “goal,” “target” and variations of 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 prospectus.

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 prospectus in the section captioned “Risk Factors.” Factors you should consider that could cause these differences are:

- * Our limited operating history and lack of profitability;
- * Our ability to secure equity or debt or other financing necessary to fund our operations and the acquisition of additional operating capacity;

- * Our ability to meet the cost and performance metrics and to implement the production capacity that we have forecasted;
- * Our ability to develop demand for, and sales of, our photovoltaic modules and establish strategic relationships with key distribution partners, including original equipment manufacturers, system integrators and distributors;
- * Our ability to obtain necessary or desired certifications for our photovoltaic modules;
- * Whether we receive timely delivery of production tools from our equipment suppliers;

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- * Our ability to design, purchase, install, qualify and operate production tools pursuant to our business plan and within budgeted amounts;
- * The extent to which we are able to reduce the per watt manufacturing costs of our photovoltaic modules, and the extent to which our competitors are able to do the same with their photovoltaic modules;
- * Global demand for electricity and the market for renewable energy, including solar energy;
- * The cost-effectiveness of photovoltaic-generated energy relative not only to that generated from conventional sources such as fossil fuels, but also to that generated from other renewable sources which include wind, biomass, geothermal and tidal power;
- * The availability of, or changes to, government policies, subsidies and incentives that affect the use or cost of renewable energy;
- * The emergence of disruptive or competing technologies in the energy industry;
- * Our competitive position and that of our photovoltaic modules relative to others in the photovoltaic and thin-film markets;
- * The extent to which our interests align with or deviate from those of TFG Radiant Investment Group Ltd. and Norsk Hydro Produksjon AS, our largest stockholders, and their affiliates;
- * Foreign currency exchange fluctuations, political instability in certain foreign markets or the general state of geopolitical affairs;
- * The supply and price of equipment, components and raw materials;
- * The status of our relationship with ITN Energy Systems, Inc.;
- * Our ability to attract and retain key executives and employees;
- * Our continued investment in research and development, and our ability to remain competitive through development of new technologies;
- * The extent to which we are able to manage the expansion of our operations effectively, both domestically and abroad;
- * Commencement of legal proceedings against us or by us, including proceedings relating to environmental matters or intellectual property rights;
- * Our ability to expand and protect the intellectual property portfolio that relates to our photovoltaic modules and processes;
- * The extent to which we qualify to perform research and development under the federal government's Small Business Innovation Research program; and
- * General economic and business conditions.

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.

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RISK FACTORS

An investment in our securities involves a high degree of risk and many uncertainties discussed in the section entitled “Risk Factors” in our annual report on Form 10-K for the year ended December 31, 2010, which is incorporated by reference into this prospectus. You should carefully consider the risk factors before purchasing our securities. If one or more of the possibilities described as risks actually occurs, our operating results and financial condition would likely suffer and the trading price of our securities could fall, causing you to lose some or all of your investment in the securities we are offering.

USE OF PROCEEDS

Unless otherwise indicated in the applicable prospectus supplement, we intend to use the net proceeds from the sale of any securities offered under this prospectus for general corporate purposes, including repayment and refinancing of debt, working capital and capital expenditures, research and development expenses, general and administrative expenses, or investment in technologies, products or assets that complement our business. We may temporarily invest the net proceeds in investment-grade and U.S. government interest-bearing securities until they are used for their stated purpose. We have not determined the amount of net proceeds to be used specifically for such purposes. As a result, management will retain broad discretion over the allocation of net proceeds.

DILUTION

If required by SEC rules, we will set forth in a prospectus supplement the following information regarding any material dilution of the equity interests of investors purchasing securities in an offering under this prospectus:

- * the net tangible book value per share of our equity securities before and after the offering;
- * the amount of the increase in such net tangible book value per share attributable to the cash payments made by purchasers in the offering; and
- * the amount of the immediate dilution from the public offering price which will be absorbed by such purchasers.

PLAN OF DISTRIBUTION

We may sell the securities being offered hereby in one or more of the following ways from time to time:

• through dealers or agents to the public or to investors;

• to underwriters for resale to the public or to investors;

• directly to investors; or

• through a combination of such methods.

We may sell the securities at a fixed price or prices that may change, at prevailing market prices, at prices relating to prevailing market prices or at negotiated prices. Each time we sell securities in a particular offering, we will set forth in a prospectus supplement the terms of the offering of securities, including:

• the material terms of the distribution, including the number of shares and the consideration paid;

the identity of any underwriters, dealers, agents or purchasers that will purchase the securities;

the type and amount of any compensation, discounts or commissions to be received by underwriters, dealers or agents;

the purchase price of the securities being offered and the proceeds we will receive from the sale;

- the nature of any transactions by underwriters, dealers or agents during the offering that are intended to stabilize or maintain the market price of our securities; and

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the terms of any indemnification provisions.

Underwriters, dealers and agents that participate in the distribution of the securities may be deemed to be underwriters as defined in the Securities Act of 1933, as amended (the "Securities Act"), and any discounts or commissions they receive from us and any profit on their resale of the securities may be treated as underwriting discounts and commissions under the Securities Act. We will identify in the applicable prospectus supplement any underwriters, dealers or agents and will describe their compensation. We may have agreements with the underwriters, dealers and agents to indemnify them against specified civil liabilities, including liabilities under the Securities Act. Underwriters, dealers and agents may engage in transactions with or perform services for us or our subsidiary in the ordinary course of their businesses.

Certain persons that participate in the distribution of the securities may engage in transactions that stabilize, maintain or otherwise affect the price of the securities, including over-allotment, stabilizing and short-covering transactions in such securities, and the imposition of penalty bids, in connection with an offering. Certain persons may also engage in passive market-making transactions as permitted by Rule 103 of Regulation M. Passive market makers must comply with applicable volume and price limitations and must be identified as passive market makers. In general, a passive market maker must display its bid at a price not in excess of the highest independent bid for such security; if all independent bids are lowered below the passive market maker's bid, however, the passive market maker's bid must then be lowered when certain purchase limits are exceeded.

DESCRIPTION OF SECURITIES

Our authorized capital stock consists of 125,000,000 shares of common stock, \$0.0001 par value, and 25,000,000 shares of preferred stock, \$0.0001 par value. As of December 29, 2011, we had 39,345,459 shares of common stock and no shares of preferred stock outstanding.

The following is a summary of the rights of our common stock, preferred stock and certain outstanding rights to obtain our common stock. For more detailed information about our capital stock, please see our certificate of incorporation and bylaws, both as amended (our "Certificate of Incorporation" and "Bylaws," respectively).