

Ascent Solar Technologies, Inc.
Form 424B3
June 10, 2009

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Registration Statement No. 333-152643

PROSPECTUS SUPPLEMENT NO. 1 DATED JUNE 10, 2009

(TO PROSPECTUS DATED JULY 30, 2008)

ASCENT SOLAR TECHNOLOGIES, INC.

86,713 shares of common stock

This Prospectus Supplement No. 1 (Prospectus Supplement) supplements and amends the Prospectus dated July 30, 2008 (the Prospectus), and relates to the reoffer and resale by officers, directors and employees of Ascent Solar Technologies, Inc. (the Company) of up to 86,713 shares of the Company s common stock, \$0.0001 par value, that are defined as control securities or restricted securities under Instruction C to Form S-8 (the Shares). These officers, directors and employees (Selling Shareholders) acquired or may acquire the Shares pursuant to grants of restricted stock units (RSUs) or restricted stock under the Company s 2008 Restricted Stock Plan (the Stock Plan). This Prospectus Supplement should be read in conjunction with the Prospectus, which is to be delivered with this Prospectus Supplement.

The Selling Shareholders will determine when they will sell their Shares, and may sell their Shares at the then-prevailing market price or at prices negotiated at the time of sale. We will not receive any proceeds from these sales. The brokers and dealers that the Selling Shareholders may utilize in selling their Shares may receive compensation in the form of underwriting discounts, concessions or commissions from the sellers or purchasers of the Shares.

Our common stock is traded on the Nasdaq Global Market under the symbol ASTI . On June 8, 2009, the last reported sale price of our common stock on the Nasdaq Global Market was \$6.76 per share.

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

Investing in the Shares involves risks. See Risk Factors beginning on page 2.

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. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE .

The date of this Prospectus Supplement is June 10, 2009.

You should rely only on the information contained in, or incorporated by reference into, the Prospectus, this Prospectus Supplement, and in any other prospectus supplement or amendment. We have not authorized any other person to provide you with different information. Information contained on our website does not constitute a part of the Prospectus or this Prospectus Supplement. The information in this Prospectus Supplement may only be accurate as of the date appearing on the cover page of this Prospectus Supplement, regardless of the time this Prospectus Supplement is delivered or common stock is sold.

Trademarks, service marks or trade names of any other companies appearing in this Prospectus Supplement are the property of their respective owners. Use or display by us of trademarks, service marks or trade names owned by others is not intended to and does not imply a relationship between us, and or endorsement or sponsorship by, the owners of the trademarks, service marks or trade names.

PROSPECTUS SUPPLEMENT SUMMARY

This summary highlights information contained in this Prospectus Supplement. While we believe that this summary highlights some of the most important information about Ascent Solar Technologies, Inc. and this offering, you should read the entire Prospectus, this Prospectus Supplement and the documents incorporated by reference carefully, including Risk Factors, before deciding to invest in our common stock. References to we, us, our, Ascent, Ascent Solar or the Company in this Prospectus Supplement mean Ascent Solar Technologies, Inc.

Business 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 provides us with significant advantages over both the crystalline silicon (c-Si) 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. Building integrated PV, electronic integrated PV, and military portable power solar panel application markets comprise our immediate target markets. We also intend to pursue opportunities in the space satellite and near-space markets.

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

This Offering

Shares of common stock offered by Selling Shareholders	86,713
Offering price	The Selling Shareholders and any of their pledgees, assignees and successors-in-interest may sell any or all of their Shares on any stock exchange, market or trading facility on which the securities are traded or in private transactions. The sales may be at fixed or negotiated prices.
Nasdaq Global Market Symbol	ASTI

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, 2008. 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 being offered.

FORWARD-LOOKING STATEMENTS

This Prospectus Supplement 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. When used in this Prospectus Supplement, the words estimates, expects, anticipates, projects, plans, intends, believes, forecasts, foresees, likely, 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 Prospectus Supplement.

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 our 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 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 that we have forecasted;
- Our ability to develop demand for, and sales of, our photovoltaic modules and establish strategic relationships with key partners, including original equipment manufacturers, system integrators and distributors;
- Our ability to obtain necessary or desired certifications for our photovoltaic modules;

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- Whether we receive timely delivery of production tools from our equipment suppliers;
- 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 that of Norsk Hydro Produksjon AS, our largest stockholder, and its affiliates;

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- 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.

SELLING SHAREHOLDERS

The table below, as of the date hereof, supplements, amends and supersedes any information in the corresponding table appearing under the heading **Selling Shareholders** in the Prospectus.

This Prospectus Supplement, like the Prospectus, relates to Shares that are being registered for reoffers and resale by the Selling Shareholders. The Selling Shareholders are either holders of restricted securities acquired under the Stock Plan or directors, officers or others who may be deemed to be affiliates who acquired or may acquire Shares under the Stock Plan. The Selling Shareholders may resell any or all of the Shares at any time while the Prospectus and this Prospectus Supplement are current.

Name	Position	Number of Shares Beneficially Owned Prior to the Offering(1)	Number of Shares Eligible to be Offered by the Selling Shareholders(2)	Number of Shares Beneficially Owned After Completion of the Offering(3)	Percentage of the Class Owned After Completion of the Offering(3)
Stanley A. Gallery	Director	135,711	20,805	114,906	*
Richard J. Swanson	Director	32,540	16,540	16,000	*
T. W. Fraser Russell, Ph.D.	Director	39,311	15,311	24,000	*
Amit Kumar, Ph.D.	Director	26,075	18,075	8,000	*
Joel S. Porter	Director	15,982	10,982	5,000	*
Mohan S. Misra, Ph.D.	Chairman and CEO	1,261,000(4)	5,000	1,256,000(4)	6.0%

* Represents less than 1%.

(1) Includes shares of common stock beneficially owned or that may be acquired upon exercise of options or warrants exercisable within sixty (60) days of the date of this Prospectus Supplement.

(2) Represents the number of Shares granted under the Stock Plan in the form of restricted stock or RSUs, whether currently vested or unvested.

(3) Assumes the resale of all Shares acquired by the Selling Shareholder pursuant to the Stock Plan and that a total of 21,083,495 shares of common stock will be issued and outstanding after this offering.

(4) Includes 806,000 shares of common stock held by ITN Energy Systems, Inc., which is 100% owned by Inica, Inc., a Colorado corporation that is wholly owned by Dr. Misra and an immediate family member.

DESCRIPTION OF SECURITIES

The following summary of our Stock Plan supplements, amends and supersedes the description of that plan appearing under **Description of Securities** in the Prospectus:

2008 Restricted Stock Plan

As of the date of this Prospectus Supplement, our 2008 Restricted Stock Plan authorizes the grant of up to 750,000 shares of restricted common stock or RSUs (subject to adjustment for stock splits and similar capital changes) to employees, directors, consultants or other service providers. According to the terms of the Stock Plan, no individual may be granted, in any fiscal year, more than 200,000 shares. Vesting of shares of restricted stock or RSUs granted under the Stock Plan may occur over a specified period of time or based upon performance metrics announced at the time of grant. As of June 1, 2009, 86,713 shares or RSUs had been granted and were outstanding under our Stock Plan.

INCORPORATION OF DOCUMENTS BY REFERENCE

This Prospectus Supplement and the Prospectus are part of a registration statement on Form S-8. The SEC allows us to incorporate by reference information that the Company previously has filed with the SEC. This means the Company can disclose important information to you by referring you to other documents that it has filed with the SEC. The information that is incorporated by reference is considered part of the Prospectus and this Prospectus Supplement, and information that the Company files later will automatically update and may supersede this information. For further information about the Company and the securities being offered, you should refer to the registration statement and the following documents that are incorporated by reference:

- Our annual report on Form 10-K filed on March 12, 2009, which contains audited financial statements for the fiscal year ended December 31, 2008;
- Our definitive proxy statement on Schedule 14A filed on May 14, 2009;
- Our quarterly report on Form 10-Q filed on May 7, 2009;
- Our current report on Form 8-K filed on February 17, 2009;
- All other reports filed by us pursuant to Section 13(a) or 15(d) of the Exchange Act since the end of the fiscal year covered by the annual report referred to above; and
- The description of our common stock contained in Forms 8-A filed on June 19, 2006 and August 8, 2006 and any amendments or reports filed for the purpose of updating such description.

All documents filed by the Company subsequent to those listed above with the SEC pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act, prior to the termination of this offering, shall be deemed to be incorporated by reference into the Prospectus and this Prospectus Supplement and to be a part thereof and hereof from the date of filing of such documents. Any statement contained in a document incorporated by reference shall be deemed to be modified or superseded for purposes of the Prospectus and this Prospectus Supplement to the extent that a statement contained herein or in any other subsequently filed document which also is or is deemed to be incorporated by reference modifies or supersedes such statement. Any statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of the Prospectus and this Prospectus Supplement.

You may request a copy of all documents that are incorporated by reference in the Prospectus and this Prospectus Supplement by writing or telephoning us at the following address and number: Ascent Solar Technologies, Inc., Attention: Corporate Secretary, 12300 Grant Street, Thornton, Colorado 80241, (720) 872-5000. We will provide copies of all documents requested (not including exhibits to those documents,

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unless the exhibits are specifically incorporated by reference into those documents or the Prospectus or this Prospectus Supplement) without charge.