Ascent Solar Technologies, Inc.
Form S-3
March 14, 2008

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As filed with the Securities and Exchange Commission on March 14, 2008

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	**3674**	**20-3672603**
(State or jurisdiction of incorporation or organization)	(Primary Standard Industrial Classification Code No.)	(IRS Employer Identification No.)

8120 Shaffer Parkway
Littleton, Colorado 80127
(303) 285-9885
(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

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Approximate Date of Commencement of Proposed Sale to Public:
As soon as practicable after the effective date of this Registration Statement.

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

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: o

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. o

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. o

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: o

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: o

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

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to Be Registered	Proposed Maximum Aggregate Offering Price[(1)(2)]	Amount of Registration Fee
Common stock, $0.0001 par value per share	$80,000,000	$3,144
TOTAL:	$80,000,000	$3,144

(1) Includes shares of common stock that may be purchased by the underwriters to cover over-allotments, if any.

(2) Estimated solely for purposes of calculating the amount of the registration fee pursuant to Rule 457(o) of the Securities Act of 1933.

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.

The information in this prospectus is not complete and may be changed. We may not sell these securities until the 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 jurisdiction where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED MARCH 14, 2008

PRELIMINARY PROSPECTUS

Shares

Ascent Solar Technologies, Inc.

Common Stock

We are offering shares of our common stock. Our common stock is traded on the Nasdaq Global Market under the symbol "ASTI." On March 13, 2008, the last reported sale price of our common stock on the Nasdaq Global Market was $11.88 per share.

Investing in our common stock involves risks. See "Risk Factors" beginning on page 8.

	Per Share	Total
Public offering price	$	$
Underwriting discount	$	$
Proceeds to us, before expenses	$	$

We have granted the underwriters a 30-day option to purchase up to additional shares from us to cover over-allotments, if any.

The underwriters expect to deliver the shares against payment in New York, New York on or about , 2008.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy of this prospectus. Any representation to the contrary is a criminal offense.

Bear, Stearns & Co. Inc.

Cowen and Company Jefferies & Company

Merriman Curhan Ford & Co.

The date of this prospectus is , 2008

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ABOUT THIS PROSPECTUS

You should rely only on information contained in, or incorporated by reference into, this prospectus, any free writing prospectus and any prospectus supplement or amendment. We have not, and the underwriters have not, authorized anyone to provide you with information different from that contained in this prospectus or incorporated by reference into this prospectus. We are not making offers to sell the securities in any jurisdiction in which such an offer or solicitation is not authorized or in which the person making such offer or solicitation is not qualified to do so, or to anyone to whom it is unlawful to make such offer or solicitation. The information in, or incorporated by reference into, this prospectus and any prospectus supplement or amendment prepared by us may be accurate only as of their respective dates.

Each trademark, service mark or trade name of any other company appearing in this prospectus belongs to its owner. 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.

INDUSTRY AND MARKET DATA

This prospectus includes industry and market data that we obtained from industry publications, third-party studies and surveys and internal company surveys. These sources include the Energy Information Administration, the International Energy Agency, Solarbuzz, LLC, Navigant Consulting, Inc., NanoMarkets, LLC and the National Renewable Energy Laboratory. Industry publications and surveys generally state that the information contained therein has been obtained from sources believed to be reliable. Unless otherwise noted, statements as to our market position relative to our competitors are approximate and based on the above-mentioned third-party data and internal analysis and estimates as of the latest available date. Although we believe the industry and market data and statements as to market position to be reliable as of the date of this prospectus, this information could prove inaccurate. Industry and market data could be wrong because of the method by which sources obtained their data and because information cannot always be verified with complete certainty due to the limits on the availability and reliability of raw data, the voluntary nature of the data gathering process and other limitations and uncertainties. In addition, we do not know all the assumptions regarding general economic conditions or growth that were used in preparing the forecasts from sources cited herein.

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 common stock. References to "we," "us," "our," "Ascent," "Ascent Solar" or the "Company" in this prospectus 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.

Because our thin-film PV modules require less than 1% of the semiconductor material to achieve the same power output as a c-Si-based PV device, we do not face the supply constraints and raw material costs that affect silicon-based PV manufacturers. Also, relative to our thin-film competitors, our use of CIGS on a flexible, lightweight, plastic substrate not only allows for integration of our PV modules into a variety of building materials and electronic products, but also should enable a reduction in the cost-per-watt ratios, and increases in the power-to-weight and power-to-area ratios, that our PV modules are able to achieve. These metrics will be critical as we position ourselves to compete in both the high value-added, integrated PV markets and the commodity solar panel market. We also believe that, when employed on a sufficiently large commercial scale, our large-format, roll-to-roll manufacturing process and proprietary monolithic integration techniques will allow us to achieve a per watt manufacturing cost lower than that of our competitors and ultimately to attain grid parity *i.e.,* the point at which the cost of our PV-generated power is equal to that of retail power distributed from the electric utility grid in certain geographic markets within five years. We currently are on schedule to begin limited commercial production of our PV modules in the second quarter of 2008 and plan to expand our rated production capacity to approximately 30 MW by the end of 2009. Thereafter, we intend to expand our rated production capacity incrementally as we install and qualify additional production tools, achieving approximately 60 MW of aggregate rated production capacity by the end of 2010 and approximately 110 MW of aggregate rated production capacity by the end of 2011. We believe that we are the only company focused on commercial scale production of PV modules using CIGS on a flexible, plastic substrate.

Our target markets include the building integrated PV (BIPV) market, in which solar modules are incorporated directly into building and construction materials, the electronic integrated PV (EIPV) market, in which solar modules are incorporated directly into portable electronic devices, and the commodity solar panel market. In the BIPV and EIPV markets, we intend to be the supplier of choice by offering high-performance, flexible PV modules that can be integrated directly into products such as roofing shingles, siding and facades, metal and composite panels and roofing membranes in the BIPV market, and electronic packages, casings, battery packs and portable power systems in the EIPV market. In the commodity solar panel market, we intend to leverage our low-cost manufacturing process to compete primarily on the basis of price.

Our marketing and distribution strategy is based on the formation of strategic relationships with key partners, including original equipment manufacturers (OEMs), system integrators and distributors, who deal directly with end-users in our target markets. In 2007, we entered into a strategic relationship with Norsk Hydro Produksjon AS (together with its affiliates, Norsk Hydro). Norsk Hydro is a major global supplier of aluminum-based building systems, and pursuant to our relationship, we intend to integrate our flexible PV modules into building products produced and sold by Norsk Hydro, including sun-shading systems, wall systems and facades. Also, in February 2008, we announced the mutual pursuit of a series of strategic relationships with ITOCHU Corporation (ITOCHU) pursuant to which ITOCHU would, among other things, manage our OEM relationships in Japan and support distribution of our PV modules into markets in which ITOCHU is pursuing solar installations. We currently are in discussions with a number of other market participants to establish similar non-exclusive relationships in a variety of geographic markets worldwide.

While focused on speed to market, we believe that quality and consistency of product will be paramount to our success in the marketplace. Consequently, our path to commercialization is defined by a highly disciplined, staged progression based upon the achievement of key milestones and supported by over thirteen years of concerted research and development activity by our scientists. In keeping with this philosophy, we completed construction of a 1.5 MW production line in December 2007 after having consistently achieved PV cell conversion efficiencies of approximately 10% to 12%, and PV module conversion efficiencies of approximately 6% to 8%, and as high as 9.6%, in a pre-production prototyping and test facility that we have operated since the fourth quarter of 2006. Conversion efficiency is the percentage of energy from absorbed light that a device is able to convert into electrical energy. Over time and with further refinement of our existing processes, we believe that our PV modules should be able to achieve efficiencies of 10% to 12%, significantly greater than the 6% conversion efficiency threshold that we believe is necessary for our products to be commercially acceptable in the current marketplace. We are now testing and qualifying the 1.5 MW production line in anticipation of commencing limited commercial production during the second quarter of 2008 with an emphasis on module testing and further optimization of production yield. The 1.5 MW production line incorporates into an integrated process each of the discrete manufacturing steps that have been previously tested in our pre-production prototyping and test facility. We expect to manufacture approximately 2 MW of product on this production line between mid-2008 and the end of 2009 while concurrently working with Norsk Hydro, ITOCHU and other strategic partners to qualify products for sale to end-users. Our manufacturing expansion plan entails the design, installation, qualification, testing and operation of additional production tools to increase our rated production capacity. We plan to expand our rated production capacity to approximately 30 MW by the end of 2009, and thereafter we intend to expand our rated production capacity incrementally as we install and qualify additional production tools, achieving approximately 60 MW of aggregate rated production capacity by the end of 2010 and approximately 110 MW of aggregate rated production capacity by the end of 2011. However, the actual production levels that we are able to realize at any point during our planned expansion will depend on a variety factors, including our ability to optimize our production process to achieve targeted production yields and module efficiencies.

Market Opportunity

According to the Energy Information Administration (EIA), a statistical agency of the U.S. Department of Energy, worldwide electricity production is expected to increase from 16.6 terawatt-hours (TWh) in 2004 to 30.7 TWh in 2030, with the vast majority produced from fossil fuel sources such as coal, oil and natural gas. This growth along with the increasing cost of fossil fuels and environmental and security concerns have led to sustained efforts to increase the use of renewable resources to generate electricity. To encourage use of renewable energy, national and regional governments around the world have implemented a variety of incentive programs. These programs include capital and production tax credits, tariff structures, and mandates requiring that a minimum

percentage of total power be produced using renewable resources. The technologies promoted by these incentives include, among others, solar, wind, geothermal and tidal power.

According to industry reports, annual shipments of PV modules increased from approximately 500 MW in 2002 to approximately 1,985 MW in 2006, representing an average compound annual growth rate of more than 40%, and it is estimated that approximately 2,580 MW of new capacity were shipped in 2007. Industry reports also suggest that the rapid growth of the sector will continue and indicate that shipments will grow to approximately 22,805 MW in 2015. Based on shipment and average module sales price forecasts contained in industry reports, the market opportunity for manufacturers of PV modules during the 2008 to 2011 period is estimated to be roughly $75 billion.

To date, the PV market has been dominated by modules produced using c-Si technology, which accounts for over 90% of the current worldwide installed capacity of PV cells. However, thin-film PV technologies are gaining market share as they generally have certain advantages over c-Si-based PV modules including reduced amounts of semiconductor material, the absence of polysilicon, and the ability to employ lower-cost manufacturing processes. According to industry reports, the production of thin-film PV modules is projected to grow to approximately 6,045 MW in 2015 from an estimated 476 MW in 2007. We believe that our flexible, lightweight PV modules are particularly well suited for integration into building materials. Industry experts estimate that the market for thin-film PV applications in commercial, industrial and residential buildings was approximately $600 million in 2007, and will grow to over $1.8 billion in 2010.

Thin-Film Technologies

Thin-film PV technology refers to the creation of PV modules by affixing a thin layer of semiconductor material to a substrate. Thin-film technologies differ from one another based on the semiconductor material used (*i.e.,* amorphous silicon or a-Si, cadmium telluride or CdTe, or CIGS) and the kind of substrate to which it is affixed (*i.e.,* glass, various metals or plastic). We believe that by using CIGS affixed to a flexible, lightweight, plastic substrate, we can offer a superior product to customers in our target markets. Unlike thin-film PV modules using other semiconductor material, CIGS-based PV modules are characterized by a combination of high conversion efficiencies, an ability to incorporate a flexible substrate and low susceptibility to degradation upon prolonged exposure to ultraviolet light. Our use of a flexible plastic substrate allows us to pursue a variety of product integration opportunities that are not technically or economically feasible for our competitors who use rigid substrates, while also enabling us to reduce our manufacturing costs using proprietary monolithic integration techniques that we believe are not feasible for manufacturers who use flexible metal substrates. We believe that we are the only company currently focused on commercial scale production of PV modules using CIGS on a flexible, plastic substrate.

Competitive Strengths

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

We are an early mover in CIGS technology with a proprietary, flexible, lightweight PV product that positions us to penetrate a wide range of attractive high value-added markets. By applying CIGS to a flexible, plastic substrate, we have developed a PV module that is efficient, lightweight and malleable, providing unique opportunities for integration into building material products (such as roofing shingles, siding and facades, metal and composite panels and roofing membranes) and electronic components (such as electronic packages, casings, battery packs and portable power systems). Relative to our competitors, we believe that our early mover advantage in CIGS technology has placed us on an accelerated path to commercialization with a superior product offering.

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 our production flow provides us with flexibility in determining 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 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 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 eliminate an entire back-end processing step, saving time as well as labor and manufacturing costs relative to our competitors.

Our strategic relationship with Norsk Hydro provides us with direct access to a large customer base in the global BIPV market. Norsk Hydro is a major global supplier of aluminum-based building systems, and our relationship provides us with a strong, established development and marketing partner for accessing the BIPV market in an accelerated manner. Together with Norsk Hydro, we are in the process of developing a product line that would incorporate our PV modules into various Norsk Hydro products such as sun-shading systems, wall systems and facades.

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 thirteen 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.

Strategies

Our goal is to become the industry leader in the high value-added BIPV and EIPV markets, where we intend to be the supplier of choice by offering high-performance, flexible PV modules that can be integrated directly into building and construction materials and portable electronic devices. We also intend to compete as a low-cost, high-quality provider in the commodity solar panel market. We plan to employ a multi-pronged strategy focused on three primary functions: manufacturing, marketing and distribution, and research and development.

Manufacturing Strategies

Maintain a methodical, disciplined approach to commercialization in order to minimize shorter term risks while maximizing longer term opportunities;

Test and qualify our 1.5 MW production line in anticipation of commencing limited commercial production in the second quarter of 2008;

Complete engineering, installation and qualification of production tools for approximately 30 MW of rated capacity by the end of 2009, an additional approximately 30 MW of rated capacity by the end of 2010 and an additional approximately 50 MW of rated capacity by the end of 2011, for a total of 110 MW of rated capacity;

Reduce per watt manufacturing costs through continued improvements in manufacturing efficiencies, yield, and throughput; and

Identify and evaluate suitable locations for expanded production capacity, domestically and abroad, that best serve our target markets and customers.

Marketing and Distribution Strategies

Establish strategic relationships with key partners, including OEMs, system integrators and distributors, providing access to end-users in attractive global markets;

Continue to develop diverse product applications in the BIPV and EIPV markets; and

Develop "commodity modules" to compete on a low-cost basis in the commodity solar panel market.

Research and Development Strategies

Continue to develop technological enhancements, such as multi-junction designs, to enhance performance of our PV modules;

Continue efforts to identify next-generation technologies to serve existing and potential new markets;

Continue to develop improved or alternative manufacturing processes; and

Seek appropriate protections for the intellectual property we develop.

Corporate Information

We are incorporated under the laws of Delaware, our principal business office is located at 8120 Shaffer Parkway, Littleton, Colorado, and our telephone number is (303) 285-9885. 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

Common stock offered by us in this offering	shares of common stock.
Common stock outstanding after this offering	shares of common stock.
Use of proceeds	For the design, purchase, installation, qualification and testing of production tools for approximately 30 MW of rated production capacity, and for general corporate purposes.
Listing	Our common stock is listed on the Nasdaq Global Market under the symbol "ASTI."
Risk factors	Investing in our common stock involves a high degree of risk. You should carefully consider the information set forth in the "Risk Factors" section.

We have granted the underwriters an option exercisable up to 30 days after the date of this prospectus to purchase up to additional shares of our common stock, on the same terms and conditions as the shares offered hereby, to cover over-allotments, if any.

As of February 29, 2008, we had 11,683,628 shares of common stock issued and outstanding. Unless the context indicates otherwise, all share and per-share common stock information in this prospectus:

- assumes a public offering price of $ per share;
- assumes no exercise of the underwriters' over-allotment option;
- assumes no exercise by Norsk Hydro of an option pursuant to which Norsk Hydro is entitled to purchase additional shares of our common stock and Class B warrants that would enable it to own up to 35% of our outstanding common stock and warrants;
- assumes no exercise of approximately 8,814,678 outstanding Class B warrants;
- assumes no exercise of approximately 112,500 outstanding warrants issued to the representative of the underwriters of our initial public offering, or of the 112,500 Class A warrants and 225,000 Class B warrants underlying those outstanding warrants; and
- excludes approximately 605,910 shares reserved for issuance upon exercise of outstanding options under our 2005 Stock Option Plan, as amended.

Summary Historical Financial Data

The following table provides a summary of our historical financial information for the periods and at the dates indicated. The summary historical financial information for the fiscal years ended December 31, 2007 and December 31, 2006 have been derived from our audited financial statements included elsewhere in this prospectus.

The information presented below should be read in conjunction with "Use of Proceeds," "Capitalization," "Selected Historical Financial Data," "Management's Discussion and Analysis of Financial Condition and Results of Operations" and the financial statements and related notes thereto included elsewhere in this prospectus. The historical results are not necessarily indicative of the results to be expected in future periods.

	Year Ended	
	Dec 31, 2006	Dec 31, 2007
	(dollars in thousands)	
Statements of Operations Data:		
Research & Development Revenues	$	$ 1,003
Research & Development Expenses	(691)	(3,975)
General and Administrative Expenses	(2,684)	(4,954)
Loss from Operations	(3,375)	(7,926)
Interest Income (Expense), Net	(806)	1,423
Net Loss	$ (4,181)	$ (6,503)
Net Loss Per Share (Basic and Diluted)	$ (1.45)	$ (0.70)
Weighted Average Common Shares Outstanding (Basic and Diluted)	2,881,639	9,237,252
Other Financial Data:		
Net Cash Used in Operating Activities	$ 2,757	$ 4,294
Capital Expenditures	467	11,013

	Actual		As Adjusted[1]
	Dec 31, 2006	Dec 31, 2007	Dec 31, 2007
	(in thousands)		
Balance Sheet Data:			
Cash, cash equivalents and short term investments	$ 10,671	$ 37,701	
Property and equipment, net	91	1,651	
Deposits on manufacturing equipment	370	9,720	
Total assets	11,290	49,817	
Current and long term liabilities[2]	389	1,195	
Total stockholders' equity	10,901	48,622	

(1) As adjusted balance sheet data as of December 31, 2007 are determined by giving effect to the sale of shares of our common stock by us in this offering at an assumed public offering price of $ per share, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. A $1.00 increase or decrease in the assumed public offering price of $ per share would increase or decrease as adjusted cash and short term investments by

$ and $ and total stockholders' equity by $ and $, assuming the number of shares offered by us, as shown on the cover of this prospectus, remains the same and after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us.

(2)

In February 2008, we acquired an approximately 120,000 square foot manufacturing and office facility in Thornton, Colorado, for approximately $5.5 million. The purchase was financed in part by a promissory note, deed of trust and construction loan agreement with the Colorado Housing and Finance Authority (CHFA), which provide the Company borrowing availability of up to $7.5 million for the building and building improvements.

RISK FACTORS

An investment in our common stock involves a high degree of risk and many uncertainties. You should carefully consider the specific factors listed below, together with the cautionary statement that follows this section and the other information included, or incorporated by reference into, this prospectus, before purchasing our common stock. If one or more of the possibilities described as risks below actually occurs, 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.

Risks Relating to Our Business

We have a limited history of operations, have not generated any revenue from operations and have not commenced commercial production of our PV modules.

We have a limited operating history and have not generated any revenue from operations. We have not completed testing and qualification of our 1.5 MW production line, and until testing and qualification of our 1.5 MW production line is complete, we will not be in a position to commence commercial production of our PV modules. Further, our plans call for expansion of production capacity, but we do not expect to achieve another approximately 30 MW of rated capacity until the end of 2009. Our ability to achieve our business, commercialization and expansion objectives will depend on a number of factors, including whether:

- we successfully qualify our 1.5 MW production line within our planned time frame;
- our products are successfully and timely certified for use in our target markets;
- we successfully qualify production tools to achieve the efficiencies and yields necessary to reach our cost targets as we expand our rated capacity;
- the cost models on which we intend to rely for the manufacture of our PV modules prove accurate;
- we raise sufficient capital to expand our total rated capacity to approximately 110 MW, and whether such capacity will enable us to reach the economies of scale we believe necessary to achieve profitability;
- we receive timely delivery of production tools from our equipment suppliers;
- we effectively manage the planned expansion of our operations; and
- we successfully develop and maintain strategic relationships with key partners, including OEMs, system integrators and distributors, who deal directly with end-users in our target markets.

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 that we cannot now anticipate will arise and require solution by us. If we do not, 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 net losses of $6.5 million in the fiscal year ended December 31, 2007 and reported an accumulated deficit of $11.9 million as of December 31, 2007. We expect to incur net losses for the foreseeable future. Our ability to achieve profitability depends on a number of factors, including the growth rate of the solar energy industry, market acceptance of thin-film and other PV modules, the competitiveness of our PV modules and our ability to increase production volumes. If we are unable to

generate sufficient revenue to achieve profitability and positive cash flows, we might be unable to satisfy our commitments and may have to discontinue operations. We cannot assure you that we will be successful in establishing ourselves as a profitable enterprise.

Our business is based on a new and unproven 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 new and unproven technology in commercial scale production. 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 all of our technology will prove to be commercially viable in accordance with our plan and strategies. Further, we 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.

We currently do not have certified PV modules and have recorded no sales of such products; further, we expect that significant PV module sales will not occur for some time.

We have recorded no sales of PV modules and have no contracts for such sales. Because we do not plan to commence commercial production until the second quarter of 2008, and because we believe that our PV modules will need to be certified in order for them to be commercially viable, it will be several months before we record significant PV module sales, if ever. We expect that it will be some time before we can determine whether our expectations relating to our products and their target markets are justified. Further, because we will be required to invest substantial resources in pursuing our target markets in advance of any significant revenue stream that may result from such investments, an unanticipated or longer than expected delay of revenue ramp-up could put a strain on our resources, adversely affecting our business, results of operation and financial condition, and could require us to seek additional capital. See "Risk Factors The net proceeds from this offering may be insufficient to fund our planned expansion to approximately 30 MW of rated capacity; also, our planned expansion to approximately 110 MW of rated capacity will require additional capital which we may not be able to obtain on favorable terms, if at all, or without dilution to our stockholders."

A failure or unanticipated delay in securing any necessary or desired certification for our PV modules from government or regulatory organizations could impair sales of our PV modules and materially and adversely affect our results of operations and financial condition.

In order for our PV modules to be commercially sold for use in our target markets, they must first be certified by certain government or regulatory organizations, such as Underwriters Laboratory, Inc. (UL), International Electrotechnical Commission (IEC) and Technischer Überwachungs-Verein Rheinland (TÜV). We believe that in some cases, these certifications would be sought by our customers and, in other cases, by us. A failure or unanticipated delay in securing any necessary or desired certification for our PV modules could impair sales of our PV modules and materially and adversely affect our business, results of operations and financial condition.

Failure to receive timely delivery of production tools from our equipment suppliers could delay our planned expansion of manufacturing capacity and materially and adversely affect our results of operations and financial condition.

Our planned expansion of manufacturing capacity and commercialization timeline depend on the timely delivery of production tools from our equipment suppliers. The relationships with our chosen equipment suppliers are relatively new, and at this point in time we cannot be certain that the equipment orders we place with these suppliers will be fulfilled as we expect or in a timely manner. If delivery of production tools is not made on schedule or at all, then we might be unable to carry out our commercialization and manufacturing expansion plans, produce PV modules in the volumes and at the times that we expect or generate sufficient revenue from operations, and our business, results of operations and financial condition could be materially and adversely affected.

Failure to expand our manufacturing capacity successfully would adversely impact our ability to sell PV modules into our target markets and would materially and adversely affect our business, results of operations and financial condition.

Our growth plan calls for the installation and operation of additional production tools to achieve the manufacturing capacities and cost efficiencies necessary to compete in our target markets. The successful completion and operation of future production tools will require substantial engineering resources and is subject to significant risks, including risks of cost overruns and delays, risks that we may not be able to successfully acquire, install, combine or operate the equipment needed, or the possibility that one or more of the production tools may never be qualified or become operational. Furthermore, we may never be able to operate our production processes in high volume, make planned process and equipment improvements, attain projected manufacturing yields or desired annual capacity, obtain timely delivery of production tools, obtain on reasonable terms adequate facilities in which to install the production tools, or hire and train the additional employees and management needed to operate and maintain the production tools. 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.

Failure to consummate strategic relationships with key partners in the BIPV and EIPV markets, or with distributors in the commodity solar panel market, could adversely affect our projected sales, growth and revenues.

We intend to sell thin-film PV modules for use in BIPV and EIPV products, such as roofing shingles, siding and facades, metal and composite panels, roofing membranes, electronic packages, casings, battery packs and portable power systems. We also intend to sell commodity modules for use in the commodity solar panel market. Our marketing and distribution strategy is to form strategic relationships with BIPV and EIPV suppliers to provide a foothold in these target markets. We also intend to form strategic relationships with distributors in the commodity solar panel market. If we are unable to successfully establish working relationships with such market participants, or if due to cost, technical or other factors, our PV modules prove unsuitable for use in such applications, our projected revenues and operating results could be adversely affected. Further, to the extent that we are able to establish strategic relationships with key partners and distributors, those relationships may be on a non-exclusive basis (for example, our strategic relationship with Norsk Hydro is non-exclusive), which means that our partners are not obligated to use us as their sole source of PV modules, and may instead choose to use the products of our competitors. Any such reduction in demand for our PV modules may have a material adverse effect on our revenues, results of operations and financial condition.

The net proceeds from this offering may be insufficient to fund our planned expansion to approximately 30 MW of rated capacity; also, our planned expansion to approximately 110 MW of rated capacity 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 net proceeds from this offering, together with current cash and cash equivalents, may not be sufficient for us to design, purchase, install, qualify and test the production tools for our planned expansion to 30 MW of rated capacity. See "Use of Proceeds" and "Management's Discussion and Analysis of Financial Condition and Results of Operations Liquidity and Capital Resources." Unanticipated costs or cost overruns that we may incur while expanding rated capacity to approximately 30 MW may prevent us from achieving that objective without the need for additional capital. Further, our planned expansion to approximately 110 MW of total rated capacity will require additional capital.

We currently are unable to determine what forms of financing, if any, will be available to us after this offering. 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, including those acquiring shares in this offering. If we raise additional funds through debt financing, which may involve restrictive covenants, our ability to operate our business may be restricted. We cannot assure you that additional financing will be available on terms favorable to us, or at all. 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 to approximately 110 MW of total rated 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.

We may be unable to manage the expansion of our operations effectively.

We will need to significantly expand our operations in order to reduce the incremental manufacturing costs of our PV modules, secure contracts of commercially material amounts with reputable customers and capture a meaningful share of our target markets. To manage the rapid expansion of our operations, we will be required to improve our operational and financial systems, 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 customers, suppliers and other third parties and attract new customers and suppliers. In addition, our current and planned operations, personnel, facility size and configuration, systems and internal procedures and controls 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.

Our PV modules may never gain market acceptance, in which case we would be unable to sell our PV modules or achieve profitability.

Demand for our PV modules may never develop, and our PV modules may never gain market acceptance, if we fail to produce PV modules that compete favorably against competing products on the basis of cost, quality, weight, efficiency and performance. Demand for our PV modules also will depend on our ability to develop and maintain successful relationships with key partners, including OEMs, system integrators and distributors. If our PV modules 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.

If sufficient demand for PV solutions 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. If PV technology proves unsuitable for widespread adoption or if demand for PV modules fails to develop sufficiently, we may be unable to grow our business, generate sufficient sales to attain profitability or continue operations. Many factors, many of which are outside of our control, may affect the viability of widespread adoption of PV technology and demand for PV modules, including:

- the cost effectiveness of PV modules and installed PV systems relative to other renewable energy sources, such as wind, geothermal and tidal power;
- the cost effectiveness of PV modules and installed PV systems relative to conventional carbon-based and other energy sources, such as coal, oil, natural gas and nuclear, and whether the levelized cost of PV can approach that of these conventional energy sources;
- whether PV-generated power reaches grid parity in the geographic markets where our products will be used;
- the availability and amount of government subsidies and incentives to support development of the solar energy industry;
- the deregulation of the electric power industry and the broader energy industry;
- the emergence of other disruptive technologies in the energy industry;
- the ease with which PV solutions can penetrate and adapt to existing energy industry infrastructure;
- the availability of raw materials used in the manufacture of PV products; and
- availability of capital to fund development of technology in the solar energy market.

If the supply of PV modules exceeds the demand for those modules, then we may be forced to reduce the price of our PV modules in order to compete effectively.

Some industry reports forecast overcapacity in the PV module market in ensuing years. In an overcapacity scenario, the supply of PV modules by manufacturers outstrips demand for those products. If either the overall PV module market or our target markets encounter an overcapacity scenario, we may be forced to scale back production or reduce the price of our PV modules in order to generate sales. In either case, our business, results of operations and financial condition could be materially and adversely affected.

Reduced growth in or the reduction, elimination, modification or expiration of government subsidies and economic incentives for solar electricity applications could reduce demand for our products.

National, regional and local governmental bodies in many countries, most notably Germany, Italy, Spain, France, South Korea, Japan, Canada and the United States, have provided support in the form of feed-in tariffs, rebates, tax write-offs and other incentives to end-users, distributors, system integrators and manufacturers of PV products. If any of these subsidies or incentives is discontinued, reduced or substantially modified, if growth in any such subsidies or incentives is reduced, or if renewable portfolio standards or similar production requirements are changed or eliminated, demand for our PV modules in the affected country or countries could decline or never develop, and our results of operations and financial condition could be materially and adversely affected as a result.

We face intense competition from manufacturers of c-Si-based PV modules, other manufacturers of thin-film PV modules and other companies in the solar energy industry.

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

The thin-film component of the industry is largely made up of a broad mix of technology platforms at various stages of development, and consists of a large and growing number of medium- and small-sized companies. Two of the largest thin-film PV manufacturers are First Solar, Inc. (USA) and United Solar Ovonic LLC (USA), each of which has reported an installed capacity of 100 MW or greater. First Solar manufactures PV modules using CdTe affixed to glass. United Solar Ovonic manufactures PV modules using a-Si affixed to flexible metal foil. Competitors currently developing or selling CIGS-based PV modules include AVANCIS GmbH & Co. KG, Global Solar Energy, Inc., HelioVolt Corporation, Honda Soltec Co. Ltd., MiaSolé, NanoSolar, Inc., SoloPower, Inc. and Würth Solar GmbH & Co. We believe that 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.

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.

A significant increase in the supply of silicon feedstock or a significant reduction in the manufacturing cost of c-Si-based PV modules could lead to pricing pressures on PV modules generally and force us to reduce the sales price of our PV modules.

A significant increase in the supply of silicon feedstock or a significant reduction in the manufacturing cost of c-Si-based PV modules could lead to pricing pressures on PV modules generally. In the face of such downward pricing pressures, we might be forced to reduce the sales prices of our PV modules, which, absent a commensurate decrease in our manufacturing costs, could materially and adversely affect our results of operations and financial condition and prevent us from achieving profitability.

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 Nasdaq Global 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. Our relative inexperience with these requirements may increase the cost of compliance and may also increase the risk that we will fail to comply. 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 that we will be able to comply with all of these requirements or that 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 and our independent registered public accounting firm to report on the effectiveness of our internal control over financial reporting, as required by Section 404 of Sarbanes-Oxley. We currently expect that we will be required to comply with all the requirements of Section 404 beginning with our annual report on Form 10-K for the fiscal year ending December 31, 2008. Our compliance with Section 404 of Sarbanes-Oxley will require that 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.

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 identify deficiencies in our internal control over financial reporting that are deemed to be material weaknesses, we may be subject to Nasdaq delisting, investigations by the U.S. Securities and Exchange Commission (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 that 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 and to obtain an unqualified report on internal controls from our auditors 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, or if our independent registered public accounting firm is unable to provide us with an unqualified report as to the effectiveness of our internal control over financial reporting as of the date of our first Form 10-K for which compliance is required, 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 Securities Exchange Act of 1934, as amended (Exchange Act). A lack of investor confidence in the reliability and accuracy of our public reporting could cause our stock price to decline.

The interests of our largest stockholder, Norsk Hydro, may conflict with our interests or your interests now or in the future.

Norsk Hydro currently owns approximately 23% of all issued and outstanding shares of our common stock and has an option to acquire up to 35% of all issued and outstanding shares of our common stock. See "Certain Relationships and Related Party Transactions Transactions Involving Norsk Hydro Produksjon AS." As a result, Norsk Hydro may have the ability to prevent any transaction that requires the approval of stockholders regardless of whether other stockholders believe that any such transaction is in their own best interests. Additionally, Norsk Hydro currently holds one seat on our Board of Directors, which affords Norsk Hydro greater control and influence over matters affecting our business.

Norsk Hydro may from time to time acquire and hold interests in businesses that compete directly or indirectly with us. Norsk Hydro 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 Norsk Hydro and our interests in selling to those customers could be divergent from Norsk Hydro's competitive interests. So long as Norsk Hydro continues to own a significant amount of the outstanding shares of our common stock, Norsk Hydro may be able to strongly influence or effectively control our decisions.

Currency translation risk may negatively affect our net sales, 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. For example, in 2007 we purchased equipment from suppliers in Japan, the United Kingdom and Germany, and our capital expenditures exceeded budgeted amounts due to the decline of the U.S. dollar versus the British pound and the euro. Until, and in some cases after, we place firm purchase orders for capital equipment with each of our suppliers, changes in currency exchange rates could significantly increase our capital expenditures beyond 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.

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 PV modules 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. In addition, 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.

Any change to our relationship with ITN could disrupt certain aspects of our business operations, including our research and development activities.

Pursuant to a Service Center Agreement in place until December 31, 2009, we have the right to use certain of ITN's laboratories, equipment and research and development tools on an as needed basis. Also, pursuant to an Administrative Services Agreement in place until December 31, 2008, ITN provides us with certain administrative services at cost, such as facilities management, equipment maintenance, procurement, information technology and technical support. See "Certain Relationships and Related Party Transactions Transactions with ITN Energy Systems, Inc." We have relied on these arrangements to conduct a large portion of our research and development activities, including those related to development and improvements of new PV technologies that may affect the viability of our products in the future. We also have relied on these arrangements for back office support services at what we believe are competitive prices. Any change to our existing relationship with ITN, including the sale of ITN to a third party or termination or alteration of the Service Center Agreement or Administrative Services Agreement, could disrupt our research and development activities and other aspects of our business. Among other things, we may be forced to seek and obtain access to different sources of laboratory equipment and tools, or we may be forced to find alternative providers of affected administrative services, or to perform administrative services ourselves. We cannot guarantee that we would be able to do so on the same or as favorable terms than we currently have with ITN, or at all; and the increased costs of alternative arrangements may materially and adversely affect our business, results of operations and financial condition.

Our future success depends on retaining our 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 Matthew Foster, our President and Chief Executive Officer, Dr. Joseph Armstrong, our Chief Technology Officer, Dr. Prem Nath, our Vice President of Manufacturing, and Dr. Mohan Misra, our Chief Strategy Officer. Our future success also will depend on our ability to attract and retain highly skilled employees, including management, technical and sales personnel. In addition, none of our management or employees is subject to non-compete agreements. The loss of any of our key personnel, the inability to attract, retain or assimilate key personnel in the future, or delays in hiring required personnel could materially harm our business, results of operations and financial condition.

Our search for and retention of a qualified Chief Financial Officer, or our inability to identify and retain a qualified Chief Financial Officer, could be disruptive to and harm our business.

We currently do not have and have never had a Chief Financial Officer. If we fail to hire and retain a qualified person to fill that position we may not be able to satisfactorily manage our finances or address the complexities of being a public company. Although we currently are interviewing candidates for our Chief Financial Officer position, we cannot assure you that we will find someone suitable to fill this position. There also are no assurances that our Chief Financial Officer, once retained, will work well with our current management team or that his or her transition into the role will be efficient. Our inability to find and employ a qualified Chief Financial Officer or to facilitate his or her smooth transition into the role could have a material adverse effect on 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.

We do not have sufficient life cycle data for our thin-film PV modules to reliably predict their lifespans in the field. Pending collection of such data over time, we may not be able to offer customers

warranty terms equivalent to those of our competitors, which may adversely impact sales or market acceptance of our PV modules. Further, even if we offer warranty terms equivalent to those of our competitors, at this time we cannot guarantee that our PV modules will perform as expected during the lifespans that our customers will expect. If our PV modules fail to perform as expected while under warranty, or if we are unable to support the warranties, sales of our PV modules may be adversely affected or our costs may increase, 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 modules could render our PV modules uncompetitive or obsolete and adversely affect sales of our PV modules and our ability to be profitable.

We will need 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 produce corresponding benefits. Other companies are developing a variety of competing PV technologies and could produce PV modules that prove more cost-effective or have better performance or reliability than our PV modules. As a result, our PV modules may be rendered obsolete or unattractive by the technological advances of others, which could reduce sales of our PV modules and adversely affect 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. 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 impact the manufacture and sale of our PV modules and could require us to incur unforeseen environmental 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, 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 non-compliance 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.

Our intellectual property 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 depend 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, both in the United States and in foreign countries, 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 material 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 have applied for patent protection in the U.S. relating to certain existing and proposed technologies and processes and services. While we generally apply for patents in those countries where we intend to make, have made, use, or sell patented products, we may not accurately predict all of the countries where patent protection will ultimately be desirable. If we fail to timely file a patent application in any such country, we may be precluded from doing so at a later date. Furthermore, we cannot assure you that any of our patent applications will be approved. We also cannot assure you that the patents issued as a result of our foreign patent applications will have the same scope of coverage as our United States patents. The patents we own could be challenged, invalidated or circumvented by others and may not be of sufficient scope or strength to provide us with any meaningful protection or commercial advantage. Further, we cannot assure you that competitors will not infringe our patents, or that we will have adequate resources to enforce our patents.

Many patent applications in the U.S. are maintained in secrecy for a period of time after they are filed, and since publication of discoveries in the scientific or patent literature tends to lag behind actual discoveries by several months, we cannot be certain that we will be the first creator of inventions covered by any patent applications we make or that we will be the first to file patent applications on such inventions. Because some patent applications are maintained in secrecy for a period of time, there is also a risk that we could adopt a technology without knowledge of a pending patent application, which technology would infringe a third party patent once that patent is issued.

We also rely on unpatented proprietary technology. It is possible that 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 you that these agreements will provide meaningful protection of our trade secrets, know-how or other proprietary information in the event of any unauthorized use, misappropriation or disclosure of any such 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.

Although we rely on copyright laws to protect the works of authorship created by us, we do not register the copyrights in all of our copyrightable works. Copyrights of U.S. origin must be registered

before the copyright owner may bring an infringement suit in the United States. Furthermore, if a copyright of U.S. origin is not registered within three months of publication of the underlying work, the copyright owner is precluded from seeking statutory damages or attorneys' fees in any United States enforcement action, and is limited to seeking actual damages and lost profits. Accordingly, if one of our unregistered copyrights of U.S. origin is infringed by a third party, we will need to register the copyright before we can file an infringement suit in the United States, and our remedies in any such infringement suit may be limited.

In addition, when others control the prosecution, maintenance and enforcement of certain important intellectual property, such as technology licensed to us, the protection 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.

Further, some of our patents and related know-how and other technology may cover inventions that were conceived or first reduced to practice under, or in connection with, U.S. government contracts or other federal funding agreements. Although we retain ownership of intellectual property developed during the performance of government contracts, the U.S. government may retain a nonexclusive, non-transferable, irrevocable, paid-up license to practice or have practiced for or on behalf of the U.S. the invention throughout the world. Further, the federal government may retain the right to impose a compulsory license in certain circumstances through the exercise of "march-in" rights under which it can compel us to license the intellectual property. If the government were to exercise "march-in" rights, we could be forced to license intellectual property developed by us on terms unfavorable to us, and our business could be materially and adversely affected. Furthermore, our ability to exclusively license or assign the intellectual property developed under these federal funding agreements to third parties may be limited or subject to the U.S. government's approval or oversight. These limitations could have a significant impact on the commercial value of the developed intellectual property in the U.S., and similar rights may be present in other countries. If one or more governments should exercise such rights, our ability to achieve profitability could be compromised and our business prospects harmed.

Our means of protecting our intellectual property rights may not be adequate, and our competitors may: independently develop substantially equivalent proprietary information, products and techniques; otherwise gain access to our proprietary information; or design around our patents or other intellectual property, any of which could result in significant costs or substantial damages to our business and our inability to manufacture, market or sell our products.

If third parties claim that we are infringing or misappropriating their intellectual property rights, we could be prohibited from selling our PV modules, 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 that 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 that 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 that are found to infringe or misappropriate. Even if obtaining a license were feasible, it could be costly and time consuming. 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.

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

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

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

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 be 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.

Our failure to secure proper sites and facilities in which to install manufacturing equipment could adversely affect our business and results of operations.

We intend to install manufacturing equipment both domestically and abroad. Selecting suitable locations for this equipment requires consideration of a variety of factors, including availability of a

skilled workforce, size and configuration of facilities, proximity to customers, transportation and infrastructure, cost of land and facilities, currency exchange rates and the prevailing political and regulatory environment. A variety of factors related to the location and selection of such sites and facilities could cause our operations to miss our expectations, and adversely affect our business, results of operations and financial condition.

Our failure to qualify for Small Business Innovation Research funding could adversely impact our revenues from research and development contracts; further, upon the exercise of "march-in" rights by the federal government, we could be forced to license intellectual property developed by us on terms unfavorable to us.

We currently receive funding for research and development under the Small Business Innovation Research (SBIR) program. In 2007, our revenues generated from performance of these contracts totaled approximately $1.0 million. In order to continue to qualify for this funding, we must remain American-owned and independently operated and our size must remain under 500 employees. As a result of our relationship with Norsk Hydro and our planned expansion plans, we cannot guarantee that we will be able to continue to qualify for SBIR funding. If we fail to qualify for SBIR funding, our revenues from research and development could decline or cease, and our net income and financial condition could be could materially and adversely affected.

Risks Relating to an Investment in Our Common Stock

Our common stock could be subject to extreme volatility.

Our common stock is currently traded on the Nasdaq Global Market. The trading price of our common stock from time to time has fluctuated widely and may be subject to similar fluctuations in the future. For example, for the calendar year ended December 31, 2007, the 52-week high and low reported closing prices of our common stock were $28.35 and $2.41, respectively. 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.

Future sales or the potential for future sales of our securities may cause the trading price of our common stock to decline and could impair our ability to raise capital through subsequent equity offerings.

Sales of a substantial number of shares of our common stock or other securities in the public markets, or the perception that these sales may occur, could cause the market price of our common stock or other securities to decline and could materially impair our ability to raise capital through the sale of additional securities. A substantial number of our outstanding shares of common stock are subject to lock-up agreements. As these shares are released from the lock-up agreements, the sale of such shares could cause the market price of our common stock to decline. Furthermore, a large number of our outstanding shares are not registered under the Securities Act of 1933, as amended (the Securities Act). If and when these shares are registered and become eligible for sale to the public market, the market price of our common stock could decline.

While any of our warrants are outstanding, it may be more difficult to raise additional equity capital.

There currently are warrants outstanding to purchase our securities. These warrants include Class B warrants and warrants issued to the representative of the underwriters in our initial public offering. During the term that any of our warrants are outstanding, the holders of those warrants are given the opportunity to profit from a rise in the market price of our common stock. The Class B warrants are not redeemable by us. We may find it more difficult to raise additional equity capital while these warrants are outstanding. At any time during which these warrants are likely to be exercised, we may be unable to obtain additional equity capital on more favorable terms from other sources. See "Description of Securities Class B Warrants" and "Description of Securities IPO Warrants."

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 Certificate of Incorporation and Bylaws, 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 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 of Directors 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 of Directors. 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. See "Description of Securities Anti-Takeover Effects of Certain Provisions of Delaware Law and Our Certificate of Incorporation and Bylaws."

FORWARD-LOOKING STATEMENTS

This prospectus 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 "Prospectus Summary," "Management's Discussion and Analysis of Financial Condition and Results of Operations," "Industry" and "Business." When used in this prospectus, 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 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 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 meet the cost and performance metrics that we have forecasted;

Our ability to develop demand for, and sales of, our PV modules and establish strategic relationships with key partners, including OEMs, system integrators and distributors;

Our ability to obtain necessary or desired certifications for our PV modules;

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 PV modules, and the extent to which our competitors are able to do the same with their PV modules;

Global demand for electricity and the market for renewable energy, including solar energy;

The cost-effectiveness of PV-generated energy relative not only to that generated from conventional sources such as fossil fuels, but also to that generated from other renewable sources such as wind, 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 PV modules relative to others in the PV and thin-film markets;

The extent to which our interests align with or deviate from that of Norsk Hydro, our largest stockholder;

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;

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 PV modules and processes;

The extent to which we qualify to perform research and development under the federal government's SBIR 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.

USE OF PROCEEDS

The net proceeds from the sale of the shares that we are selling in this offering will be approximately $, or approximately $ if the underwriters exercise their over-allotment option in full.

We intend to use the net proceeds of this offering for the design, purchase, installation, qualification and testing of production tools for approximately 30 MW of rated production capacity, and for general corporate purposes.

In order to design, purchase, install, qualify and test the production tools required to achieve an additional approximately 30 MW of rated production capacity, we intend to apply the proceeds of this offering to a number of items, including: (i) the purchase and installation of capital equipment; (ii) acquisitions and modifications of facilities, laboratory equipment, test equipment, and quality control equipment; (iii) the labor associated with the engineering, installation and qualification; and (iv) product certification and test procedures. We expect that net proceeds from any exercise of the underwriters' over-allotment option would be applied to the same purposes.

The foregoing information is an estimate based on our current business plan. We may find it necessary to shift funds reserved for one category of uses to another. For example, if our non-recurring engineering and other costs exceed current estimates due to increases in costs of materials or equipment, we may be forced to draw from funds budgeted for other purposes. In such cases, we may find it necessary or advisable to re-allocate portions of the net proceeds we receive from this offering, and we will have broad discretion in doing so. Investors will be relying on the judgment of management regarding the application of these net proceeds. Pending these uses, we intend to invest the net proceeds of the offering in short term, interest-bearing securities.

A $1.00 increase or decrease in the assumed public offering price of $ per share would increase or decrease the net proceeds to us from this offering by $, assuming the number of shares offered by us, as shown on the cover of this prospectus, remains the same and after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us.

PRICE RANGE OF COMMON STOCK

Our common stock has been listed on the Nasdaq Global Market under the symbol "ASTI" since November 13, 2007, and on the Nasdaq Capital Market from August 10, 2006 until November 13, 2007. Prior to August 10, 2006, there was no public market for our common stock. The following table sets forth the range of high and low sales prices per share as reported on Nasdaq for the periods indicated.

	High	Low
Fiscal 2006		
Third Quarter (since August 10, 2006)	$ 3.50	$ 2.01
Fourth Quarter	$ 3.95	$ 2.09
Fiscal 2007		
First Quarter	$ 10.44	$ 2.41
Second Quarter	$ 11.34	$ 6.99
Third Quarter	$ 19.75	$ 6.50
Fourth Quarter	$ 28.35	$ 13.17
Fiscal 2008		
First Quarter (through March 13, 2008)	$ 27.95	$ 11.88

The closing sales price of our common stock on the Nasdaq Global Market was $11.88 per share on March 13, 2008. As of March 5, 2008, there were approximately 51 record holders of our common stock, and we believe that there were approximately 9,400 beneficial owners of our common stock.

DIVIDEND POLICY

We have never paid, and it is our present intention for the foreseeable future not to pay, dividends on our common stock. The declaration and payment of dividends is subject to the discretion of our Board of Directors and depends on various factors, including our net income, financial conditions, cash requirements, future prospects, contractual restrictions and other factors deemed relevant by our Board of Directors.

CAPITALIZATION

The following table sets forth our:

- Actual capitalization as of December 31, 2007; and
- As adjusted capitalization as of December 31, 2007, after giving effect to our sale of shares of common stock in this offering, after deducting the estimated underwriting discounts and commissions and offering expenses payable by us.

	December 31, 2007	
	Actual	**As Adjusted**
Debt[1]	$	$
STOCKHOLDERS' EQUITY		
Preferred stock, $0.0001 par value: 25,000,000 shares authorized: no shares issued and outstanding	$	$
Common stock, $0.0001 par value: 75,000,000 shares authorized: 11,435,901 shares issued and outstanding December 31, 2007 actual; shares issued and outstanding as adjusted	1,144	
Additional paid-in capital	60,512,476	
Deficit accumulated during development stage	(11,891,565)	
Total capitalization	$ 48,622,055	$

(1) In February 2008, we acquired an approximately 120,000 square foot manufacturing and office facility in Thornton, Colorado, for approximately $5.5 million. The purchase was financed in part by a promissory note, deed of trust and construction loan agreement with CHFA, which provide the Company borrowing availability of up to $7.5 million for the building and building improvements.

You should read this table in conjunction with the sections of this prospectus captioned "Use of Proceeds," "Selected Historical Financial Data" and "Management's Discussion and Analysis of Financial Condition and Results of Operations," as well as the financial statements and related notes included elsewhere in this prospectus.

A $1.00 increase or decrease in the assumed offering price of $ per share would affect our cash position, additional paid-in capital and total capitalization as follows, assuming the number of shares offered by us, as shown on the cover of this prospectus, remains the same and after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us:

	If a $1.00 increase:	**If a $1.00 decrease:**
Cash	$	$
Additional paid-in capital	$	$
Total capitalization	$	$

DILUTION

If you invest in our common stock in this offering, your ownership interest will be diluted to the extent of the difference between the public offering price per share of our common stock and the as adjusted net tangible book value per share of our common stock upon completion of this offering. Historical net tangible book value per share is determined by dividing our total tangible assets (total assets less intangible assets), less total liabilities by the number of outstanding shares of our common stock. The historical net tangible book value of our common stock as of December 31, 2007 was approximately $48.5 million, or approximately $4.24 per share of common stock, based on the number of shares of common stock outstanding as of December 31, 2007.

Investors participating in this offering will incur immediate and substantial dilution. After giving effect to the sale of common stock offered by us in this offering at the public offering price of $ per share, and after deducting the underwriting discounts and commissions and estimated offering costs payable by us, our as adjusted net tangible book value as of December 31, 2007 would have been approximately $ million, or approximately $ per share of common stock. This represents an immediate increase in as adjusted net tangible book value of $ per share to existing common stockholders, and an immediate dilution of $ per share to investors participating in this offering. The following table illustrates this per share dilution:

Public offering price per share[(1)]	$
Historical net tangible book value per share as of December 31, 2007	
Increase in historical net tangible book value per share attributable to investors participating in this offering	
As adjusted historical net tangible book value per share after this offering	
Dilution per share to investors participating in this offering	$

(1) Based upon the closing price of our common stock on , 2008.

If the underwriters also exercise their option in full to purchase additional shares of common stock in this offering, based on shares sold by us pursuant to such option, our as adjusted net tangible book value per share as of December 31, 2007 would have been $ per share, the increase in our net tangible book value per share to existing stockholders would be $ per share and the dilution to new investors participating in this offering would be $ per share.

SELECTED HISTORICAL FINANCIAL DATA

The following table sets forth our selected financial data for the periods and at the dates indicated. The selected financial data for the fiscal years ended December 31, 2006 and December 31, 2007 and as of December 31, 2006 and December 31, 2007 have been derived from the audited financial statements included elsewhere in this prospectus.

The information presented below should be read in conjunction with "Use of Proceeds," "Capitalization," "Management's Discussion and Analysis of Financial Condition and Results of Operations" and the financial statements and related notes included elsewhere in this prospectus. The historical results are not necessarily indicative of the results to be expected in future periods.

	Year Ended	
	Dec 31, 2006	Dec 31, 2007
	(dollars in thousands)	
Statements of Operations Data:		
Research & Development Revenues	$	$ 1,003
Research & Development Expenses	(691)	(3,975)
General and Administrative Expenses	(2,684)	(4,954)
Loss from Operations	(3,375)	(7,926)
Interest Income (Expense), Net	(806)	1,423
Net Loss	$ (4,181)	$ (6,503)
Net Loss Per Share (Basic and Diluted)	$ (1.45)	$ (0.70)
Weighted Average Common Shares Outstanding (Basic and Diluted)	2,881,639	9,237,252
Other Financial Data:		
Net Cash Used in Operating Activities	$ 2,757	$ 4,294
Capital Expenditures	467	11,013

	As of	
	Dec 31, 2006	Dec 31, 2007
	(in thousands)	
Balance Sheet Data:		
Cash, cash equivalents and short term investments	$ 10,671	$ 37,701
Property and equipment, net	91	1,651
Deposits on manufacturing equipment	370	9,720
Total assets	11,290	49,817
Current and long term liabilities[(1)]	389	1,195
Total stockholders' equity	10,901	48,622

(1) In February 2008, we acquired an approximately 120,000 square foot manufacturing and office facility in Thornton, Colorado, for approximately $5.5 million. The purchase was financed in part by a promissory note, deed of trust and construction loan agreement with the CHFA, which provide the Company borrowing availability of up to $7.5 million for the building and building improvements.

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 accompanying notes for the fiscal year ended December 31, 2007. This discussion and analysis contains statements of a forward-looking nature that involve known and unknown risks. Our actual results may differ materially from those anticipated in these forward-looking statements. The following discussion should be read in conjunction with the other parts of this prospectus, including "Risk Factors," "Forward-Looking Statements" and the financial statements and related notes included elsewhere in this prospectus.

Overview

We are a development stage company formed to commercialize flexible PV modules using proprietary technology. For the year ended December 31, 2007, we generated approximately $1.0 million in revenues, none of which came from our planned principal operations to commercialize flexible PV modules. As of December 31, 2007, we had an accumulated deficit of approximately $11.9 million. Under our current business plan, we expect losses to continue through at least 2009. To date, we have financed our operations primarily through public and private equity financings.

Our path to commercialization is defined by a highly disciplined, staged progression based upon the achievement of key milestones. We completed construction of a 1.5 MW production line on schedule in December 2007 after having consistently achieved PV cell conversion efficiencies of approximately 10% to 12%, and PV module conversion efficiencies of approximately 6% to 8%, and as high as 9.6%, in a pre-production prototyping and test facility that we have operated since the fourth quarter of 2006. Conversion efficiency is the percentage of energy from absorbed light that a device is able to convert into electrical energy. Over time and with further refinement of our existing processes, we believe that our PV modules should be able to consistently achieve efficiencies of 10% to 12%. We are now testing and qualifying our 1.5 MW production line in anticipation of commencing limited commercial production during the second quarter of 2008 with an emphasis on module testing and further optimization of production yield. Our production line incorporates into an integrated process each of the discrete manufacturing steps that have been previously tested in our pre-production prototyping and test facility.

Our manufacturing expansion plan entails the design, installation, qualification, testing and operation of additional production tools to increase our rated production capacity, and contemplates the addition of approximately 30 MW of rated capacity by the end of 2009, another approximately 30 MW of rated capacity by the end of 2010 and another approximately 50 MW of rated capacity by the end of 2011. We therefore expect to have approximately 110 MW of rated production capacity in place by the end of 2011. Rated production capacity refers to our expected level of annual production upon optimizing our production process and is based on assumed production yields and module efficiencies. The actual production levels that we are able to realize at any point during our planned expansion will depend on a variety of factors, including our ability to optimize our production process to achieve targeted production yields and module efficiencies. See Risk Factors including "Risk Factors We have a limited history of operations, have not generated any revenue from operations and have not commenced commercial production of our PV modules."

1.5 MW Production Line Status

The major modifications to our building and facilities in Littleton, Colorado to accommodate the new 1.5 MW production line were completed, and all the requisite production tools and support

equipment were delivered and installed, by the fourth quarter 2007. We are currently qualifying the production tools for the following manufacturing processes:

Manufacturing Process	Manufacturing Tool
Thin-film vacuum coating of molybdenum back contact	Roll-to-roll tool for sputtering
Thin-film vacuum coating of copper, indium, gallium, selenium	Roll-to-roll tool for thermal evaporation
Chemical spray coating of deionized water and cadmium sulfide	Roll-to-roll tool for chemical treatment
Thin-film vacuum coating of transparent conductive oxide (TCO)	Roll-to-roll tool for sputtering
Laser patterning and ink printing of modules	Roll-to-roll monolithic integration tool

The following diagram is a general illustration of our manufacturing process:

Other tools, including laminators, solar simulators and environmental testing chambers, and characterization and quality control equipment have been installed and qualified and comprise the remainder of the major equipment for our 1.5 MW production line.

Each tool on the production line must be individually qualified, and operators must be trained to operate each tool within designed control limits that we believe are necessary to ensure production of quality products. When each tool is operating properly and within set standards, we intend to commence operation of the entire 1.5 MW production line as an integrated process and to begin manufacturing modules in order to achieve an initial operating capability (IOC). Our goal is to achieve IOC by the end of the first quarter in 2008, by which time we expect to understand better any operational performance issues with the production tools, quality issues and initial product performance and efficiency levels. During the second quarter of 2008, we intend to focus on manufacturing optimization to achieve desired initial production yields of 65% or greater and module efficiencies of 7% to 8%. In order to achieve these objectives, we must successfully transition the manufacturing processes and performance levels achieved with our prototyping tools to the 1.5 MW production line throughout the first and second quarters of 2008.

Our principal activities during 2008 will be to qualify our production tools and manufacturing processes, and to produce product for the following purposes: internal product development; testing

and qualification; and external product testing to gain UL, IEC and TÜV certifications, one or more of which is necessary for some product and customer applications. Other product uses include demonstrations, joint product development, limited sales and further market development with new strategic partners and customers. Successful accomplishment of our objectives in these areas is necessary to support the commencement of full-scale manufacturing at the 1.5 MW level and to make progress consistent with our current commercialization and manufacturing expansion plan.

Commercialization and Manufacturing Expansion Plan

We intend to be the first company to manufacture large, roll-format, PV modules in commercial quantities that use CIGS on a flexible, plastic substrate. Our manufacturing expansion plan entails the design, installation, qualification, testing and operation of additional production tools to increase our rated production capacity. We intend to incrementally expand our aggregate production capacity to 110 MW by attaining the following milestones within the time frames indicated:

Second quarter of 2008: commence limited commercial production on 1.5 MW production line.

Third quarter of 2008: begin certification and qualification of products through UL, IEC and TÜV.

Third quarter of 2008: begin procuring production tools for the first 30 MW of incremental rated capacity.

Fourth quarter of 2008: complete certification of products from 1.5 MW production line.

Third quarter of 2009: begin procuring production tools for the second 30 MW of incremental rated capacity.

Fourth quarter of 2009: complete qualification of production tools for the first 30 MW of incremental rated capacity and commence production at 30 MW of aggregate rated capacity.

Third quarter of 2010: begin procuring production tools for the final 50 MW of incremental rated capacity.

Fourth quarter of 2010: complete qualification of production tools for the second 30 MW of incremental rated capacity and commence production at 60 MW of aggregate rated capacity.

Fourth quarter of 2011: complete qualification of production tools for the final 50 MW of incremental rated capacity and commence production at 110 MW of aggregate rated capacity.

Although we currently plan to expand our production capacity in accordance with the timeline above, the actual timing and amount of production capacity that we install may significantly deviate from the above plan due to market conditions, availability of financing, timeliness of delivery of production tools, product performance and other factors described in this prospectus. See "Significant Trends, Uncertainties and Challenges" below, and Risk Factors including "Risk Factors We have a limited history of operations, have not generated any revenue from operations and have not commenced commercial production of our PV modules."

Although we do not expect that minor delays in product certifications would significantly affect our ability to continue developing product applications with our customers, delays that extend significantly into 2009 likely would impact our ability to develop demand for our PV modules, and would affect our planned sales and results of operations in 2010, when we expect to have commenced production using our planned production tools for approximately 30 MW of rated capacity.

Using our 1.5 MW production line as a model, we have commenced engineering and development of our planned production tools for approximately 30 MW of rated capacity. We plan to procure these production tools by the third quarter of 2008, and to complete installation of the production tools by the end of the second quarter of 2009. Allowing six months to qualify the tools and achieve IOC, we plan to commence production at 30 MW of rated capacity by the end of 2009. In order to qualify

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approximately 30 MW of rated capacity by the end of 2009, we intend to purchase and install production tools that will process one-third meter wide plastic rolls identical to those used in our existing 1.5 MW production line. Significant delays in the qualification of the 1.5 MW production line and/or delays in the delivery, installation and qualification of additional production tools may impact our real and projected product sales in 2010. Further, satisfactory performance of our 1.5 MW production line is a precursor to achieving our commercial production targets.

We expect that the production tools used for the next approximately 80 MW of rated capacity and for future capacity expansions will be engineered to process larger one meter wide rolls, and we have initiated engineering and development of production tools to support our planned expansion to 110 MW of rated capacity. Successfully transitioning to one meter wide rolls should significantly increase our throughput, thereby reducing the number of manufacturing tools and, hence, the amount of capital expenditures required for equipment and facilities. Generally speaking, we believe that all other process variables, such as speed, thickness and composition, should remain unchanged. Based upon discussions with our equipment suppliers, we have identified deposition of the CIGS layer in the one meter wide format as the most challenging aspect of transitioning to one meter wide rolls; consequently, we have initiated the development of a one meter wide prototype CIGS production tool to enable us to begin evaluating and testing one meter wide area deposition sources and process control systems. This prototype production tool is scheduled for delivery in the third quarter of 2008, which under our current schedule allows for nine months of testing and evaluation prior to committing the capital in 2009 to procure the one meter format production tools to support further expansion to approximately 110 MW of rated capacity. In addition, we anticipate that our planned expansion to approximately 110 MW of total rated capacity will require additional capital. See "Risk Factors The net proceeds from this offering may be insufficient to fund our planned expansion to approximately 30 MW of rated capacity; also, our planned expansion to approximately 110 MW of rated capacity will require additional capital which we may not be able to obtain on favorable terms, if at all, or without dilution to our stockholders."

In February 2008, we acquired an approximately 120,000 square foot manufacturing and office facility in Thornton, Colorado, for approximately $5.5 million. The purchase was financed in part by a promissory note, deed of trust and construction loan agreement with CHFA, which provide us borrowing availability of up to $7.5 million for the building and building improvements. We paid approximately $1.3 million in cash and were advanced approximately $4.2 million from CHFA to fund the initial acquisition of the property. The construction loan terms are to pay interest at 6.6% on only the drawn principal amount until January 1, 2009, at which time the construction loan will be refinanced by a permanent loan. The permanent loan will have an interest rate of 6.6% and the principal will be amortized over a period of approximately 19 years and 2 months consistent with a maturity date 20 years after the incurrence of the construction loan on February 8, 2008. The terms of the permanent loan are specified in a CHFA Construction and Permanent Loan Commitment dated January 16, 2008. In 2008, we intend to draw down the available remaining balance of the construction loan, approximately $3.3 million, to pay for building improvements.

Capital Equipment Expenditures and Manufacturing Costs

Since our formation in October 2005, most of our cash outlays have gone toward the investment in capital equipment necessary to develop our manufacturing capabilities for producing the commercial products we envision. We expect this trend to continue into the foreseeable future as we expand to approximately 110 MW of rated capacity by the end of 2011. We will require additional capital and additional facilities to achieve our manufacturing expansion plans. If we are unable to secure the necessary capital or to manage the disbursement of capital taking into consideration any unforeseen factors, such as cost increases from our equipment suppliers and the potential continued devaluation of the U.S. dollar against foreign currencies, our ability to expand our manufacturing capacity as planned, as well as our financial performance and results of operations, may be adversely affected.

Our major equipment suppliers are located in Japan, the United Kingdom and Germany. The recent downward trend of the U.S. dollar against the yen, the British pound and the euro has resulted in an increase in our estimated and projected capital expenditure requirements. Although the devaluation of the dollar directly affects our capital outlays, it generally strengthens the value of our products relative to those of many of our foreign competitors to the extent that our production costs are incurred in U.S. dollars. We currently expect the capital expenditures needed to support the first 30 MW of rated capacity to be approximately $80 million to $85 million for property, plant and equipment and approximately $8 million for installation, qualification and other associated pre-operating expenses. We intend to finance these expenditures with the net proceeds from this offering. In order to install the next 80 MW of rated capacity, we expect that we will require another approximately $170 million to $180 million for property, plant and equipment and approximately $15 million for installation, qualification and other associated pre-operating expenses. Assuming optimized run rate production yields and module efficiencies, we expect our PV module manufacturing cash costs to be approximately $1.00 per watt when operating at 30 MW of rated capacity and approximately $0.90 per watt when operating at 110 MW of rated capacity.

To manage the uncertainties related to the procurement of capital equipment, we have continued to work closely with our equipment suppliers to complete the engineering of our new tools and refine the estimates of our planned capital outlays. The production tool costs are subject to change until we place firm procurement orders with our suppliers, which we expect will occur beginning the third quarter of 2008. To manage the fluctuations of foreign exchange rates, we procure equipment from Japan under contract terms based upon U.S. dollars at the time of contract. For equipment procured in Europe, we intend to negotiate with our suppliers to achieve similar terms. Although we do not currently engage in any foreign currency hedging activities, we intend to consider the merits of using financial instruments to hedge against such uncertainties in the future.

Significant Trends, Uncertainties and Challenges

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

- Our ability to successfully qualify our 1.5 MW production line and obtain necessary or desired certifications for our PV modules;
- Our ability to expand production in accordance with our plans set forth above under "Commercialization and Manufacturing Expansion Plan" to add approximately 30 MW of rated capacity by the end of 2009, another approximately 30 MW of rated capacity by the end of 2010 and another approximately 50 MW of rated capacity by the end of 2011, and to achieve certifications of our planned PV modules;
- Our ability to achieve projected operational performance and cost metrics;
- Our ability to consummate strategic relationships with key partners, including OEMs, system integrators and distributors who deal directly with end-users in the BIPV, EIPV and commodity solar panel markets;
- The effect that currency fluctuations may have on our capital equipment purchases, manufacturing costs and the price of our planned PV modules; and
- Our ability to manage the planned expansion of our manufacturing facilities, operations and personnel.

Other trends, uncertainties and challenges may exist and are discussed elsewhere in this prospectus, including under the heading "Risk Factors."

Critical Accounting Policies and Estimates

The preparation of our financial statements requires us to make certain estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses, and the related disclosures. A summary of accounting policies that have been applied to the financial statements presented can be found in the notes thereto. We consider certain of these accounting policies to be critical as they are both important to the portrayal of our financial condition and results of operations and require judgments on the part of management about matters that are uncertain. We have identified the following accounting policies that are important to the presentation of the financial information:

Basis of Presentation: Our activities to date have substantially consisted of raising capital, research and development, and the development of a 1.5 MW production line. Revenues to date have been generated from our government research and development (R&D) contracts and have not been significant. Our planned principal operations to commercialize flexible PV modules have not yet commenced. Accordingly, we are considered to be in the development stage, as defined in Statement of Financial Accounting Standards No. 7 (SFAS No. 7), "*Accounting and Reporting by Development Stage Enterprises*."

Short Term Investments: Our short term investments, which are classified as available-for-sale securities, are invested in high-grade variable rate demand notes, which have a final maturity date of up to 30 years but whose interest rates are reset at varying intervals typically between 1 and 7 days. Unlike auction rate securities, variable rate demand notes can be readily liquidated at any interest rate reset date, either by putting them back to the original issuer or by putting them to a third-party re-marketer as generally provided in the original prospectus. To date, we have always been able to redeem our holdings of these securities in accordance with their terms, and we believe that the risk of non-redemption is minimal. Consequently, these securities are available for use to support the current cash needs of our operations, and in accordance with Accounting Research Bulletin 43, they are classified as short term investments.

Revenue Recognition: Revenue to date is from our government research and development contracts 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 firm 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.

Income Taxes: In July 2006, the FASB (Financial Accounting Standards Board) issued FASB Interpretation (FIN) No. 48, "*Accounting for Uncertainty in Income Taxes*." We adopted the provisions of FIN No. 48 on January 1, 2007. Deferred income taxes are determined 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 from the date of enactment.

Stock-based Compensation: Our accounts for share-based payments under the provisions of Statement of Financial Accounting Standards No. 123 (revised 2004), "*Share-Based Payment,*" (SFAS 123(R)) which requires the measurement and recognition of compensation expense for all share-based payment awards made to employees, officers and directors, and consultants, including employee stock options based on estimated fair values. SFAS 123(R) requires companies to estimate the fair value of share-based payment awards on the date of grant using an option-pricing model. 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. Stock-based compensation is based on awards ultimately expected to vest and is reduced for estimated forfeitures. SFAS 123(R) requires forfeitures to be estimated at the time of grant and revised, if 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 under SFAS 123(R), we used the Black-Scholes option-pricing model (Black-Scholes Model). 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.

The guidance in SFAS 123(R) is relatively new, and best practices are not well established. The application of these principles 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 application of SFAS 123(R) in future periods, or if we decide to use a different valuation model, the compensation expense that we record in the future under SFAS 123(R) 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.

Results of Operations

Comparison of the Years Ended December 31, 2007 and 2006

Certain reclassifications have been made to the 2006 financial information to conform to the 2007 presentation. Such reclassifications had no effect on net loss and are related to reclassifying costs between R&D expenses and general and administrative expenses in the Statement of Operations for the year ended December 31, 2006. Our activities to date have substantially consisted of raising capital, business and product development, research and development and the development of our 1.5 MW production line.

Research and Development Contract Revenues. Our R&D contract revenues were $1,002,674 for the year ended December 31, 2007. There were no R&D contract revenues for the year ended December 31, 2006. A majority of our revenues during the year ended December 31, 2007 were revenues earned on our government R&D contracts novated January 1, 2007 from ITN and new government R&D contracts awarded to us in 2007.

Research and Development Expenses. R&D expenses were $3,975,079 for the year ended December 31, 2007 compared to $690,964 for the year ended December 31, 2006, an increase of $3,284,115. The increase is comprised of $2,562,213 related to personnel, materials and facilities required to optimize our manufacturing processes in advance of commencing full-scale production on our 1.5 MW production line and $721,902 of direct costs and related overhead on our government R&D contracts that began on January 1, 2007.

General and Administrative Expenses. General and administrative expenses (G&A) were $4,953,910 for the year ended December 31, 2007 compared to $2,684,340 for the year ended December 31, 2006, an increase of $2,269,570. The increase of $2,269,570 is comprised of two components, an increase in corporate G&A expenses of $883,635 and an increase in non-cash stock-based compensation expense of $1,385,935. The increase in corporate G&A expenses corresponds with

our increase in headcount and increases in corporate activity such as legal, SEC reporting, stock and corporate registration fees, travel and insurance during the year ended December 31, 2007 as compared to the year ended December 31, 2006. Non-cash stock-based compensation for the years ended December 31, 2007 and 2006 was $1,734,879 and $348,944, respectively. The significant increase in stock compensation expense for the year ended December 31, 2007 is primarily due to the requirements of SFAS 123(R) and EITF 96-18 to generally measure stock-based compensation to non-employees as vesting occurs and for unvested shares at the balance sheet date. Since our stock price as of December 31, 2007 was significantly higher than as of December 31, 2006, this requirement resulted in an increased fair value calculation related to stock-based payments to non-employees. Additional grants of our stock options during 2007 also contributed to the increase.

Interest Expense. Interest expense was $424 for the year ended December 31, 2007 compared to $1,080,691 for the year ended December 31, 2006, a decrease of $1,080,267. Interest expense in 2006 resulted from interest on the bridge loan notes and related bridge rights and financing transactions of which $800,000 was non-cash related to the valuation and subsequent amortization of the bridge loan rights. In July 2006, the bridge loan was repaid in full with the proceeds from our initial public offering (IPO).

Interest Income. Interest income was $1,423,320 for the year ended December 31, 2007 compared to $275,083 for the year ended December 31, 2006, an increase of $1,148,237. Interest income represents interest on cash and short term investments. Our short term investments, which are classified as available-for-sale securities, are invested in high-grade variable rate demand notes, which have a final maturity date of up to 30 years but whose interest rates are reset at varying intervals typically between 1 and 7 days.

Net Loss. Our net loss was $6,503,419 for the year ended December 31, 2007 compared to a net loss of $4,180,912 for the year ended December 31, 2006, an increase in net loss of $2,322,507. This increase can be summarized in variances in significant account activity as follows:

	Increase (decrease) to net loss For the year ended December 31, 2007
R&D Contract Revenues	$ (1,002,674)
R&D Expenses	
Manufacturing R&D	2,562,213
Government R&D	721,902
G&A Expenses	
Corporate G&A	883,635
Non-Cash Stock-Based Compensation	1,385,935
Interest Expense	(1,080,267)
Interest Income	(1,148,237)
Increase to Net Loss	$ 2,322,507

Liquidity and Capital Resources

On July 10, 2006, we completed our IPO of 3,000,000 units; each unit consisted of one share of our common stock, one redeemable Class A warrant with an expiration date of July 10, 2011 and an exercise price of $6.60 per share, and two non-redeemable Class B warrants, each with an expiration date of July 10, 2011 and an exercise price of $11.00 per share. The initial public offering price was $5.50 per unit. Our net proceeds from the offering were approximately $14 million.

In the fiscal year ended December 31, 2007, we completed the following financing transactions:

On March 13, 2007, we completed a private placement of securities whereby Norsk Hydro purchased 1,600,000 shares of our common stock for an aggregate purchase price of approximately $9.2 million, for a 23% interest in us. In connection with the private placement, Norsk Hydro was granted two options, which expire on June 15, 2009, to purchase additional shares and warrants.

On May 24, 2007, we publicly announced our intention to redeem our outstanding Class A warrants at $0.25 per warrant. The exercise period ended June 22, 2007. During the exercise period, 3,098,382 of our Class A warrants (94.2% of the total outstanding) were exercised for an equal number of shares of common stock, and we received approximately $20.5 million in proceeds. All outstanding Class A warrants that were not exercised before June 22, 2007 were or may be redeemed by us at $0.25 per warrant for a total cost of approximately $48,000. As of February 29, 2008, 9,090 Class A warrants had not yet been surrendered to our transfer agent for redemption at $0.25 per warrant.

On August 16, 2007, Norsk Hydro acquired an additional 934,462 restricted shares of our common stock and 1,965,690 Class B warrants upon exercise of one of the options granted to Norsk Hydro on March 13, 2007. Gross proceeds to us were approximately $10.5 million, and reflected per share and per warrant purchase prices equal to the average of the closing bids of each security, as reported by Nasdaq, for the five consecutive trading days preceding exercise. After acquiring these additional shares, Norsk Hydro again held 23% of each of our total outstanding common shares and Class B warrants, after its ownership percentage had been diluted as the result of the exercise and redemption of Class A warrants subsequent to March 13, 2007. Pursuant to its other option, until June 15, 2009, Norsk Hydro has the opportunity to purchase additional shares and Class B warrants, generally at prevailing market prices at the time of exercise, to enable it to hold up to 35% of each class of security. After expiration of this option, Norsk Hydro will no longer be restricted to a 35% maximum holding in the Company and may purchase our securities in the open market.

In June and September 2007, a total of 11,000 Class B public warrants were exercised resulting in proceeds to us of $121,000.

In September, October and November 2007, warrants that had been issued to the representative of the underwriters in our IPO were exercised resulting in the issuance of 300,000 shares of common stock and 600,000 Class B warrants for total proceeds to us of approximately $2.0 million.

In January 2007, approximately $3.5 million of existing government-funded R&D contracts were novated from ITN to us together with the transfer of related personnel. The transferred contracts had remaining future revenues of approximately $1.6 million. During 2007, we were awarded approximately $1.7 million of additional contracts under new R&D government-funded contract awards or modifications to existing R&D contracts. As of December 31, 2007, we had a backlog of approximately $2.4 million in revenues on our existing R&D contracts, which revenues are expected to be recognized during the contracts' periods of performance in 2008 and 2009.

For the year ended December 31, 2007, our cash used in operations was approximately $4.3 million compared to approximately $2.8 million for the year ended December 31, 2006. As of December 31, 2007, approximately $10.9 million had been expended in capital for our 1.5 MW production line, facility modifications, and office and research and development equipment. As of December 31, 2007, we had approximately $37.7 million in cash and investments, approximately $1.1 million of which will be used for final progress payments to our equipment suppliers on our 1.5 MW production line and approximately $2.3 million of which is committed for a manufacturing research and development tool in conjunction with production tools to support approximately 30 MW of incremental rated production capacity.

During 2007, the use of cash for operational expenses averaged approximately $358,000 per month and related to pre-manufacturing activities, research and technology development, business development and general corporate expenses. We expect these operational expenses to increase in 2008 as we commence commercial production and increase the size of our workforce. Average monthly operational expense for 2007 of approximately $358,000 is net of average monthly R&D revenues from our government contracts of approximately $84,000 and average monthly interest income of approximately $119,000. Without the offset of interest income, actual monthly operational costs were higher than in 2006 and higher than previously anticipated due to the acceleration of our plans to scale up manufacturing. A significant component of our costs related to the development and production of product prototypes utilizing existing research and development process tools to help us solidify process techniques and qualify product performance in advance of the build out of the 1.5 MW production line. We also incurred additional costs for investor relations, business development and marketing communications support to strengthen our shareholder relations, support our anticipated government program activities, and support implementing our market strategies. We anticipate that our operational expenditures will continue to increase throughout 2008 and 2009 due to the planned hiring of additional personnel to help our 1.5 MW production line reach its operating potential and in connection with our planned expansion of manufacturing capacity. As of February 29, 2008, we had 34 full-time employees of which 18 were manufacturing personnel. We plan to increase our staff in 2008 to approximately 50 to 60 people, principally in manufacturing, business development and sales and marketing.

We have acquired all of the capital equipment required for the 1.5 MW production line and expect to make final payments in the first quarter of 2008. The capital outlays shown below represent estimated and actual costs in connection with our 1.5 MW production line and production facility modifications:

Stage of Development	Completion	Estimated Future Capital Outlay	Actual Capital Outlay
Completion of engineering specifications	3rd QTR 2006	$	$ 220,000
Facility and equipment construction:			
Progress payments	4th QTR 2006		370,000
Progress payments	1st QTR 2007		1,400,000
Progress payments	2nd QTR 2007		2,300,000
Progress payments	3rd QTR 2007		2,400,000
Progress and final payments	4th QTR 2007		4,200,000
Progress and final payments	1st QTR 2008 (est)	1,110,000	
Qualification and IOC	1st QTR 2008 (est)		
Limited production capability	2nd QTR 2008 (est)		
Total		$ 1,110,000	$ 10,890,000

We expect to commence limited commercial production on our 1.5 MW production line in the second quarter of 2008. We do not expect that our sales revenue from the 1.5 MW production line will be sufficient to support our operations and cash requirements, and it is unlikely that our sales revenue will support our operating cash requirements unless we achieve actual production capacity of at least 30 MW per year. We intend to use our existing cash to build our operational infrastructure and to begin development of manufacturing capacity necessary to produce PV modules for sale into our target markets. We expect our current cash balance to be sufficient to cover our operational expenditures through 2009 based on currently known factors, although we will need to raise capital in 2008 in order to purchase the production tools necessary to achieve approximately 30 MW of rated capacity by the end of 2009.

Off Balance Sheet Transactions

We have no off balance sheet transactions and had none in 2007.

INDUSTRY

Background

Power is the rate of production or consumption of energy and can be quantified in watts (W). The following increments are used in this prospectus when discussing the power industry and the PV market:

1 kilowatt (kW) = 1,000 W

1 megawatt (MW) = 1,000,000 W

1 gigawatt (GW) = 1,000,000,000 W

1 terawatt (TW) = 1,000,000,000,000 W

Electricity usage generally is expressed in kilowatt-hours (kWh), or the number of kilowatts consumed in an hour. For example, one kWh equals the use of 1 kW for one hour. By way of reference, the average U.S. household is said to consume 10,600 kWh of electricity each year.

Electric Power Industry

According to the EIA, a statistical agency of the U.S. Department of Energy, global demand for electricity is expected to nearly double from approximately 16.6 TWh in 2004 to 30.7 TWh in 2030. Further, the International Energy Agency, an energy policy advisor to 27 countries including France, Germany, Japan, the United Kingdom and the United States, has predicted that governments and industries worldwide will need to invest approximately $20 trillion in energy-supply infrastructure between 2005 and 2030 in order to meet this demand. Although the vast majority of electricity generated today is produced using fossil fuels such as coal, oil and natural gas, the world's supply of these carbon-based fuels is limited. This fact, coupled with rising energy prices, and various environmental and geopolitical security concerns, have led to sustained efforts to increase use of renewable energy sources such as solar, wind, geothermal and tidal power. The U.S. Department of Energy reports that in 2005, approximately 66% of worldwide energy was produced from fossil fuels, 17% from hydroelectric, 15% from nuclear and 2% from geothermal, solar, wind and biomass.

PV Market

PV technology has sparked extensive interest as an alternative source for generating electricity. By converting sunlight into electrical energy, PV installations are able to harness the sun's energy to produce power for regional electrical utility grids, provide power directly to commercial and residential end users and supply electricity to remote regions of the world. According to industry reports, annual shipments of PV modules increased from approximately 500 MW in 2002 to approximately 1,985 MW in 2006, representing an average compound annual growth rate of more than 40%, and it is estimated that approximately 2,580 MW of new capacity were shipped in 2007. Industry reports also suggest that the rapid growth of the sector will continue and indicate that shipments will grow to approximately 22,805 MW in 2015. Based on shipment and average module sales price forecasts contained in industry

reports, the market opportunity for manufacturers of PV modules during the 2008 to 2011 period is estimated to be roughly $75 billion. Industry reports contain the following market estimate and data:

PV Module Market

	Total PV Module Shipments (MW)[1]	Thin-Film Production (MW)[2]	Average Module Sale Price ($/W)[1]
2007(est.)	2,587	476	$ 3.75
2008	3,471	801	$ 3.75
2011	8,187	2,763	$ 3.15
2015	22,805	6,045	$ 2.65

(1) Data from Navigant Consulting, Inc., PV Services Program, "Analysis of Worldwide Markets for Photovoltaic Products and Five-Year Application Forecast 2006/2007."

(2) Data from NanoMarkets, LLC, "Thin-Film, Organic and Printable Photovoltaics Markets: 2007-2015."

We believe that our flexible, lightweight PV modules are particularly well suited for integration into building materials. Industry experts estimate that the market for thin-film PV applications in commercial, industrial and residential buildings was approximately $600 million in 2007, and will grow to over $1.8 billion in 2010. This includes building products such as roofing shingles, siding and facades, metal and composite panels and roofing membranes, thereby adding value to those already-existing products. Our PV technology also can be used in a variety of EIPV applications, whereby PV modules are integrated into portable electronic packages, casings, battery packs and portable power systems.

Challenges Facing the PV Industry

Despite increased interest in PV as an alternative energy source, the PV industry must overcome a number of challenges to achieve widespread acceptance and commercialization of its products, including:

High cost of PV electricity relative to conventional sources. Currently, without the aid of significant government incentives and subsidies, PV electricity is not cost competitive with that generated from conventional fossil fuel sources such as coal, oil and natural gas.

Limited availability of semiconductor materials. PV modules require semiconductor material to convert sunlight into electrical energy. In 2006, well over 90% of the PV modules sold worldwide used c-Si as a semiconductor absorbing layer. However, increasing demand by the PV and electronics industries has placed strains on the supply of silicon feedstock, which may constrain growth of the overall PV market.

Intermittent source of power. PV systems require sunlight to generate electricity and generally are less effective in geographic regions with low levels of sunlight or extreme temperatures. As a result, PV systems generally cannot be relied upon as a sole source of electricity, but instead must be used as a part of, or as a supplement to, a larger electrical power system supplied by other fuel sources.

PV Technology

PV electricity is generated by systems that convert the sun's energy directly into electrical energy. PV cells are the most elementary component of any PV system; they utilize a layer of semiconductor

material to absorb sunlight and convert it into electrical power. Electrical contact points are added to move electricity out of each cell, much like a household battery. A PV module consists of several PV cells connected together before the entire unit is encapsulated to protect against moisture and other undesirable environmental influences. PV modules may then be assembled together to form part of a PV system, which also may include an inverter to convert the direct current electricity from PV cells into alternating current electricity suitable for connection to a utility grid.

The term "conversion efficiency" describes the percentage of energy from absorbed light that a device whether it be a PV cell or a PV module is able to convert into electrical energy. For example, if a PV cell is able to produce 100 W of electricity when exposed to 1,000 W of sunlight energy, then the PV cell has a conversion efficiency of 10%. The PV industry uses a set of reference measurement conditions, called "standard test conditions" or "STC," to evaluate and compare the performance of different PV devices. STC is used to measure a device's peak output power (watts peak or "Wp") and conversion efficiency at a specified standard temperature (*i.e.*, 25 degrees celsius), solar irradiance (*i.e.,* 1 kW/m^2) and illumination. When used in this prospectus in relation to solar capacity, production volume or shipment volume, the term "MW" denotes "MWp," the number of megawatts peak under STC. In real world operations, PV devices installed in the field typically operate outside STC; therefore, when designing and producing a PV product for commercial applications, manufacturers must understand and consider the environmental conditions in which their PV products will operate.

On average, the sun provides approximately 1.0 kW of power to each square meter of the Earth's surface. Consequently, a one square meter PV device operating at STC with a 10% conversion efficiency rating would, in theory, generate approximately 100 Wp, or 0.10 kWp, of direct current power. If the conditions persist for one hour, then the device would generate 0.10 kWh of electricity. We believe that thin-film PV modules in commercial production today are exhibiting average conversion efficiencies of approximately 6% to 10%.

The Costs of PV Power

The cost per watt (expressed in $/Wp) of a PV module equals the cost to produce a PV module divided by the peak power output of that module under STC. The cost to produce a PV module depends on a variety of considerations, including the cost of raw materials, the complexity and cost of the manufacturing process and the volume and speed with which PV modules can be produced. Peak power output is a function of, among other things, the conversion efficiency of the PV module, where conversion efficiency is dictated by factors such the type of semiconductor material used as an absorbing layer and the technology used in the manufacturing process. c-Si PV modules generally have higher conversion efficiencies than thin-film PV modules, but use approximately 100 times more semiconductor material and are more expensive to produce in large volumes.

The "levelized cost of electricity" (LCOE) is the effective price paid by the end customer for PV generated electricity after taking into account all system costs (including module costs and the costs of other components in a complete PV system) and performance characteristics. LCOE is significant because it will help determine when PV-generated electricity achieves grid parity in a given market. In virtually every major market in the world, LCOE of PV still exceeds that of traditional fuel sources. However, industry experts forecast that LCOE of PV solutions will approach grid parity in most major regions in five to seven years. Until that point is reached, and perhaps beyond, growth of the PV market will rely heavily on governmental regulation, subsidies and incentives to make PV-generated electricity cost-competitive. National, regional and local governmental bodies in many countries, most notably Germany, Italy, Spain, France, South Korea, Japan, Canada and the United States, have provided support in the form of feed-in tariffs, rebates, tax write-offs and other incentives to end-users, distributors, system integrators and manufacturers of PV products. For example, Germany provides significant subsidies under the German Renewable Energy Law, or the EEG, to encourage installations

of PV solutions. In the U.S., net metering programs, in which end-users with installed PV systems are able to sell excess PV-generated electricity to their local utility in exchange for a credit against their utility bills, are currently offered in approximately 40 states and the District of Columbia. In an effort to encourage installation of over 3 GW of new PV capacity by 2017, California offers cash-back incentives for new installations and has implemented a pay-for-performance incentive structure to reward high-performance PV projects. Other states have implemented renewable portfolio standards, which typically mandate that a minimum percentage of electricity generated by utilities are derived from renewable sources, including solar. Tax incentive programs also are used at both the federal and state levels to encourage new PV installations. Demand for PV products likely would decline if these governmental programs were reduced or eliminated.

Types of PV Solutions

Historically, the PV market has been dominated by PV modules based on c-Si technology, and c-Si currently accounts for over 90% of the worldwide installed PV base. However, thin-film PV technologies that use a thin layer of a-Si, CdTe or CIGS as the semiconductor material are gaining market share. These thin-film technologies share several technical and economic advantages over traditional c-Si technology because they generally:

require only about 1% of the semiconductor material to achieve the same power output as c-Si, resulting in a fundamental weight and material cost advantage;

use no polysilicon and so have little or no exposure to ongoing silicon feedstock supply shortages and recent silicon price increases; and

enable scalable, lower-cost manufacturing techniques at the module level, reducing the cost and complexity of PV module production.

BUSINESS

Overview

We are a development stage company formed in October 2005 to commercialize flexible PV modules using proprietary technology. Our technology was initially developed at 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 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 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.

Because our thin-film PV modules require less than 1% of the semiconductor material to achieve the same power output as a c-Si-based PV device, we do not face the supply constraints and raw material costs that affect silicon-based PV manufacturers. Also, relative to our thin-film competitors, our use of CIGS on a flexible, lightweight, plastic substrate not only allows for integration of our PV modules into a variety of building materials and electronic products, but also should enable a reduction in the cost-per-watt ratios, and increases in the power-to-weight and power-to-area ratios, that our PV modules are able to achieve. These metrics will be critical as we position ourselves to compete in both the high value-added, integrated PV markets and the commodity solar panel market. We also believe that, when employed on a sufficiently large commercial scale, our large-format, roll-to-roll manufacturing process and proprietary monolithic integration techniques will allow us to achieve a per watt manufacturing cost lower than that of our competitors and ultimately to attain grid parity in certain geographic markets within five years. We currently are on schedule to begin limited commercial production of our PV modules in the second quarter of 2008 and plan to expand our rated production capacity to approximately 30 MW by the end of 2009. Thereafter, we intend to expand our rated production capacity incrementally as we install and qualify additional production tools, achieving approximately 60 MW of aggregate rated production capacity by the end of 2010 and approximately 110 MW of aggregate rated production capacity by the end of 2011. We believe that we are the only company focused on commercial scale production of PV modules using CIGS on a flexible, plastic substrate.

Our target markets include the BIPV market, in which solar modules are incorporated directly into building and construction materials, the EIPV market, in which solar modules are incorporated directly into portable electronic devices, and the commodity solar panel market. In the BIPV and EIPV markets, we intend to be the supplier of choice by offering high-performance, flexible PV modules that can be integrated directly into products such as roofing shingles, siding and facades, metal and composite panels and roofing membranes in the BIPV market, and electronic packages, casings, battery packs and portable power systems in the EIPV market. In the commodity solar panel market, we intend to leverage our low-cost manufacturing process to compete primarily on the basis of price.

Our marketing and distribution strategy is based on the formation of strategic relationships with key partners, including OEMs, system integrators and distributors, who deal directly with end-users in our target markets. In 2007, we entered into a strategic relationship with Norsk Hydro. Norsk Hydro is a major global supplier of aluminum-based building systems, and pursuant to our relationship, we intend to integrate our flexible PV modules into building products produced and sold by Norsk Hydro, including sun-shading systems, wall systems and facades. Also, in February 2008, we announced the mutual pursuit of a series of strategic relationships with ITOCHU pursuant to which ITOCHU would, among other things, manage our OEM relationships in Japan and support distribution of our PV modules into markets in which ITOCHU is pursuing solar installations. We currently are in discussions

with a number of other market participants to establish similar non-exclusive relationships in a variety of geographic markets worldwide.

While focused on speed to market, we believe that quality and consistency of product will be paramount to our success in the marketplace. Consequently, our path to commercialization is defined by a highly disciplined, staged progression based upon the achievement of key milestones and supported by over thirteen years of concerted research and development activity by our scientists. In keeping with this philosophy, we completed construction of a 1.5 MW production line in December 2007 after having consistently achieved PV cell conversion efficiencies of approximately 10% to 12%, and PV module conversion efficiencies of approximately 6% to 8%, and as high as 9.6%, in a pre-production prototyping and test facility that we have operated since the fourth quarter of 2006. Over time and with further refinement of our existing processes, we believe that our PV modules should be able to achieve efficiencies of 10% to 12%, significantly greater than the 6% conversion efficiency threshold that we believe is necessary for our products to be commercially acceptable in the current marketplace. We are now testing and qualifying the 1.5 MW production line in anticipation of commencing limited commercial production during the second quarter of 2008 with an emphasis on module testing and further optimization of production yield. The 1.5 MW production line incorporates into an integrated process each of the discrete manufacturing steps that have been previously tested in our pre-production prototyping and test facility. We expect to manufacture approximately 2 MW of product on this production line between mid-2008 and the end of 2009 while concurrently working with Norsk Hydro, ITOCHU and other strategic partners to qualify products for sale to end-users. Our manufacturing expansion plan entails the design, installation, qualification, testing and operation of additional production tools to increase our rated production capacity. We plan to expand our rated production capacity to approximately 30 MW by the end of 2009, and thereafter we intend to expand our rated production capacity incrementally as we install and qualify additional production tools, achieving approximately 60 MW of aggregate rated production capacity by the end of 2010 and approximately 110 MW of aggregate rated production capacity by the end of 2011. However, the actual production levels that we are able to realize at any point during our planned expansion will depend on a variety factors, including our ability to optimize our production process to achieve targeted production yields and module efficiencies.

Projected Commercialization Timeline

We intend to be the first company to manufacture large, roll-format, PV modules in commercial quantities that use CIGS on a flexible, plastic substrate. Our manufacturing expansion plan entails the design, installation, qualification, testing and operation of additional production tools to increase our rated production capacity. We intend to incrementally expand our aggregate production capacity to 110 MW by attaining the following milestones within the time frames indicated:

Second quarter of 2008: commence limited commercial production on 1.5 MW production line.

Third quarter of 2008: begin certification and qualification of products through UL, IEC and TÜV.

Third quarter of 2008: begin procuring production tools for the first 30 MW of incremental rated capacity.

Fourth quarter of 2008: complete certification of products from 1.5 MW production line.

Third quarter of 2009: begin procuring production tools for the second 30 MW of incremental rated capacity.

Fourth quarter of 2009: complete qualification of production tools for the first 30 MW of incremental rated capacity and commence production at 30 MW of aggregate rated capacity.

Third quarter of 2010: begin procuring production tools for the final 50 MW of incremental rated capacity.

Fourth quarter of 2010: complete qualification of production tools for the second 30 MW of incremental rated capacity and commence production at 60 MW of aggregate rated capacity.

Fourth quarter of 2011: complete qualification of production tools for the final 50 MW of incremental rated capacity and commence production at 110 MW of aggregate rated capacity.

Although we currently plan to expand our production capacity in accordance with the timeline above, the actual timing and amount of production capacity that we install may significantly deviate from the above plan due to market conditions, availability of financing, timeliness of delivery of production tools, product performance and other factors described in this prospectus.

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. We believe that we are the only company currently focused on commercial scale production of PV modules using CIGS on a flexible, plastic substrate. We utilize CIGS as a semiconductor material because, at the laboratory level, it has a higher demonstrated cell conversion efficiency than a-Si and CdTe. We also believe that 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 that CdTe has never been successfully applied to a flexible substrate on a commercial scale. We believe that the use of CdTe on a rigid, transparent substrate, such as glass, makes CdTe unsuitable for a number of the applications that we are targeting in the BIPV and EIPV markets.

Our choice of substrate material further differentiates us from other thin-film PV manufacturers. We believe that the use of a flexible, lightweight substrate provides clear advantages in the higher value-added BIPV and EIPV markets, where rigid substrates are unsuitable for many applications. We also believe that our use of a flexible, plastic substrate provides us significant cost advantages because it enables us to employ monolithic integration techniques that we believe are unavailable to manufacturers who use flexible, metal substrates. Accordingly, we are able to eliminate 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, we believe we have the opportunity both to penetrate the BIPV and EIPV markets with a high quality, value-added product and also to compete in the commodity solar panel market as a low-cost producer.

Competitive Strengths

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

We are an early mover in CIGS technology with a proprietary, flexible, lightweight PV product that positions us to penetrate a wide range of attractive high value-added markets. By applying CIGS to a flexible, plastic substrate, we have developed a PV module that is efficient, lightweight and

malleable, providing unique opportunities for integration into building material products (such as roofing shingles, siding and facades, metal and composite panels and roofing membranes) and electronic components (such as electronic packages, casings, battery packs and portable power systems). Relative to our competitors, we believe that our early mover advantage in CIGS technology has placed us on an accelerated path to commercialization with a superior product offering.

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 our production flow provides us with flexibility in determining 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 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 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 eliminate an entire back-end processing step, saving time as well as labor and manufacturing costs relative to our competitors.

Our strategic relationship with Norsk Hydro provides us with direct access to a large customer base in the global BIPV market. Norsk Hydro is a major global supplier of aluminum-based building systems, and our relationship provides us with a strong, established development and marketing partner for accessing the BIPV market in an accelerated manner. Together with Norsk Hydro, we are in the process of developing a product line that would incorporate our PV modules into various Norsk Hydro products such as sun-shading systems, wall systems and facades.

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 thirteen 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.

Markets and Marketing Strategy

Our target markets include the BIPV market, in which solar modules are incorporated directly into building and construction materials, the EIPV market, in which solar modules are incorporated directly into portable electronic devices, and the commodity solar panel market. In the BIPV and EIPV markets, we intend to be the supplier of choice by offering high-performance, flexible PV modules that can be integrated directly into products such as roofing shingles, siding and facades, metal and composite panels and roofing membranes in the BIPV market, and electronic packages, casings, battery packs and portable power systems in the EIPV market. In the commodity solar panel market, we intend to leverage our low-cost manufacturing process to compete primarily on the basis of price.

Our marketing and distribution strategy is based on the formation of strategic relationships with key partners, including OEMs, system integrators and distributors, who deal directly with end-users in our target markets. In 2007, we entered into a strategic relationship with Norsk Hydro, a major global supplier of aluminum-based building systems. Pursuant to that relationship, we are cooperating with Norsk Hydro to integrate our flexible PV modules into building products produced and sold by Norsk

Hydro, including sun-shading systems, wall systems and facades. The first of these products is expected to be a line of BIPV louvered sun shading systems that will be marketed under the brand name "Brise Soleil." Norsk Hydro showcased the Brise Soleil product concept at the BATIMAT building exposition in Paris, France in November 2007. We expect product prototyping to continue through the second quarter of 2008 while our PV products are tested and certified. Also, in February 2008, we announced the mutual pursuit of a series of strategic relationships with ITOCHU pursuant to which ITOCHU would, among other things, manage our OEM relationships in Japan and support distribution of our PV modules into markets in which ITOCHU is pursuing solar installations. We currently are in discussions with a number of other market participants to establish similar non-exclusive relationships in a variety of geographic markets worldwide.

Until we commence production at approximately 30 MW of rated production capacity, which we currently expect will occur by the end of 2009, we intend to supply our strategic partners with PV module samples produced on our 1.5 MW production line to support our partners' development, testing and certification of new integrated products, which also should enable them to identify and cultivate promising market segments. By cooperating with our strategic partners in this way, we hope to create sufficient and consistent demand for our PV modules by the time we commence large scale commercial production of our PV modules using our planned production tools for approximately 30 MW of rated capacity. We also intend to initiate sales of PV modules to these partners from our 1.5 MW production line. With the exception of our planned "commodity modules" (described below), which we expect to sell through various distributors, we envision that we ultimately will serve as a provider of high value-added components to our strategic partners, who will be solely responsible for the marketing, sales and distribution of their integrated building and electronics products. In so doing, we intend to position ourselves as the leading manufacturer and supplier of value-added PV components to the BIPV and EIPV markets.

Based upon industry reports, we believe that the overwhelming majority of manufacturers in the commodity solar panel market are makers of rigid and relatively heavy glass-encased modules of fixed sizes and power ratings. In this type of commodity market, we believe that cost is one of the main competitive discriminators. We therefore intend to leverage our low-cost manufacturing process to compete primarily on the basis of price, and to develop our own line of standard "commodity modules." Also, by capitalizing on the lightweight features our PV products, we believe that we can reduce overall system installation costs, making our commodity modules more attractive to both installers and end-users.

Although the BIPV, EIPV and the commodity solar panel markets comprise our immediate target markets, in the longer term, we also intend to pursue opportunities in the space satellite and near-space markets. We expect the space satellite and the near-space markets to evolve more gradually than the terrestrial market principally due to the higher degree of product qualifications and flight testing that will be required. We anticipate that our pathway to the space and near-space markets will be through development of small mini-modules for experimental space qualification tests and then actual flight experiments with government customers, followed by full scale flight arrays on operational systems once the technology and arrays have been fully space qualified. We intend to pursue these opportunities in the longer term because we believe that the space and near-space markets place a premium on performance and offer a correspondingly high-value opportunity for our CIGS PV products.

Manufacturing and Manufacturing Strategy

We manufacture our products by affixing a thin CIGS layer to a flexible, plastic substrate, and by using proprietary monolithic integration techniques that enable us to form complete PV modules without engaging in costly back-end assembly of inter-cell connections. Historically, PV manufacturers made PV modules by bonding or soldering discrete PV cells together. This manufacturing step typically

increased manufacturing costs and at times proved detrimental to the overall yield and reliability of the finished product. By eliminating this added step using our proprietary monolithic integration techniques, we believe that we can achieve cost savings in, and increase the reliability of, our PV modules. We also use a large-format, roll-to-roll manufacturing process that permits us to fabricate our flexible PV modules in an integrated sequential operation.

The following diagram is a general illustration of our manufacturing process:

While focused on speed to market, we believe that quality and consistency of product will be paramount to our success in the marketplace. Consequently, our path to commercialization is defined by a highly disciplined, staged progression based upon the achievement of key milestones and supported by over thirteen years of concerted research and development activity by our scientists. In keeping with this philosophy, we completed construction of a 1.5 MW production line in December 2007 after having consistently achieved PV cell conversion efficiencies of approximately 10% to 12%, and PV module conversion efficiencies of approximately 6% to 8%, and as high as 9.6%, in a pre-production prototyping and test facility that we have operated since the fourth quarter of 2006. Over time and with further refinement of our existing processes, we believe that our PV modules should be able to achieve efficiencies of 10% to 12%, significantly greater than the 6% conversion efficiency threshold that we believe is necessary for our products to be commercially acceptable in the current marketplace.

The major modifications to our building and facilities in Littleton, Colorado to accommodate the new 1.5 MW production line were completed, and all the requisite production tools and support

equipment were delivered and installed, by the fourth quarter of 2007. We are currently qualifying the production tools for the following manufacturing processes:

Manufacturing Process	Manufacturing Tool
Thin-film vacuum coating of molybdenum back contact	Roll-to-roll tool for sputtering
Thin-film vacuum coating of copper, indium, gallium, selenium	Roll-to-roll tool for thermal evaporation
Chemical spray coating of deionized water and cadmium sulfide	Roll-to-roll tool for chemical treatment
Thin-film vacuum coating of transparent conductive oxide (TCO)	Roll-to-roll tool for sputtering
Laser patterning and ink printing of modules	Roll-to-roll monolithic integration tool

Other tools, including laminators, solar simulators and environmental testing chambers, and characterization and quality control equipment have been installed and qualified and comprise the remainder of the major equipment for our 1.5 MW production line.

We are now testing and qualifying the 1.5 MW production line in anticipation of commencing limited commercial production during the second quarter of 2008 with an emphasis on module testing and further optimization of production yield. We expect to manufacture approximately 2 MW of product on this production line between mid-2008 and the end of 2009 while concurrently working with Norsk Hydro, ITOCHU and other strategic partners to qualify products for sale to end- users.

Using our 1.5 MW production line as a model, we have commenced engineering and development of our planned production tools for approximately 30 MW of incremental rated capacity. In order to add approximately 30 MW of rated capacity by the end of 2009, we intend to purchase and install production tools that will process one-third meter wide plastic rolls identical to those used in our existing 1.5 MW production line. We expect that the production tools used for the next approximately 80 MW of rated capacity and for future expansions will be engineered to process larger one meter wide rolls, and we have initiated engineering and development of production tools to support our planned expansion to approximately 110 MW of rated capacity by the end of 2011. Successfully transitioning to one meter wide rolls should significantly increase our throughput, thereby reducing the number of manufacturing tools and, hence, the amount of capital expenditures required for the equipment and facilities. Generally speaking, we believe that all other process variables, such as speed, thickness and composition, should remain unchanged. Based upon discussions with our equipment suppliers, we have identified deposition of the CIGS layer in the one meter wide format as the most challenging aspect of transitioning to one meter wide rolls; consequently, we have initiated the development of a one meter wide prototype CIGS production tool to enable us to begin evaluating and testing one meter wide area deposition sources and process control systems. This prototype production tool is scheduled for delivery in the third quarter of 2008, which under our current schedule allows for nine months of testing and evaluation prior to committing the capital in 2009 to procure the one meter format production tools to support further expansion to approximately 110 MW of rated capacity.

We currently expect the capital expenditures needed to support the first 30 MW of rated capacity to be approximately $80 million to $85 million for property, plant and equipment and approximately $8 million for installation, qualification and other associated pre-operating expenses. We intend to finance these expenditures with the net proceeds from this offering. In order to install the next 80 MW of rated capacity, we expect that we will require another approximately $170 million to $180 million for property, plant and equipment and approximately $15 million for installation, qualification and other associated pre-operating expenses. See "Risk Factors The net proceeds from this offering may be insufficient to fund our planned expansion to approximately 30 MW of rated capacity; also, our planned expansion to approximately 110 MW of rated capacity will require additional capital which we may not be able to obtain on favorable terms, if at all, or without dilution to our stockholders."

Assuming optimized run rate production yields and module efficiencies, we expect our PV module manufacturing cash costs to be approximately $1.00 per watt when operating at 30 MW of rated capacity and approximately $0.90 per watt when operating at 110 MW of rated capacity.

We intend to continue refinement of our manufacturing process in order to enhance parameters such as throughput, efficiency and yield. We also intend to identify and evaluate suitable locations for new production lines, domestically and abroad, that we believe will best serve our target markets and customers.

Competition

Today the market for PV products is dominated by large silicon cell and silicon module manufacturers. The largest silicon-based manufacturers include Motech Industries, Inc. (Taiwan), Q-cells (Germany), Sanyo Electric Co. Ltd. (Japan), Sharp (Japan) and Suntech Power Holdings Co., Ltd. (China). In all, there are over 20 manufacturers with annual production capacities in excess of 25 MW. We anticipate that while these leaders may continue to dominate the market with their silicon-based products for several years, thin-film manufacturers will begin to capture an increasingly larger share of the market.

The thin-film component of the industry is largely made up of a broad mix of technology platforms at various stages of development, and consists of a large and growing number of medium- and small-sized companies. Two of the largest thin-film PV manufacturers are First Solar, Inc. (USA) and United Solar Ovonic LLC (USA), each of whom has reported an installed capacity of 100 MW or greater. First Solar manufactures PV modules by depositing CdTe onto rigid glass plates and uses monolithic integration techniques similar to ours in order to create modules. Relative to our lightweight, flexible plastic substrates, PV modules using glass substrates are rigid and heavy. First Solar therefore primarily serves the commodity markets for PV modules that include large scale, grid-connected solar power projects. United Solar Ovonic manufactures thin-film a-Si cells on flexible metal foil and then individually assembles the cells together into modules; we believe that the module integration technique used by United Solar Ovonic is similar to the way c-Si cells are individually assembled together in series and parallel to form an integrated module, adding weight and cost to the assembly. Competitors currently developing or selling CIGS-based PV modules include AVANCIS GmbH & Co. KG, Global Solar Energy, Inc., HelioVolt Corporation, Honda Soltec Co. Ltd., MiaSolé, NanoSolar, Inc., SoloPower, Inc. and Würth Solar GmbH & Co. We believe that 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.

Research and Development and Intellectual Property

Our core group of scientists has worked together since 1993 in the research and development of CIGS and related PV technologies. We intend to continue to invest in research and development in order to identify next-generation technologies relevant to both our existing and potential new markets. For example, we are pursuing multi-junction CIGS designs that we believe, if successfully deployed, would significantly increase the conversion efficiencies of our existing PV modules. We also are engaged in research and development activities related to longer term opportunities in the evolving space satellite and near-space markets.

Our technology was initially developed at ITN by our founder and core scientific team beginning in 1994. In early 2006, ITN assigned to us its CIGS PV-specific technologies, and granted to us a perpetual, exclusive, royalty-free, worldwide license to use certain of ITN's existing and future proprietary process and control technologies that, although non-specific to CIGS PV, we believe will be useful in our production of PV modules for our target markets.

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

"Apparatus and Method of Production of Thin Film Photovoltaic Module" (U.S. Patent No. 7,271,333) (issued September 18, 2007)

"Flexible High Voltage Photovoltaic Array With Integrated Wiring and Control Circuitry, and Associated Methods" (U.S. Provisional App. No. 60/853,609) (filed October 23, 2006)

"Flexible High Voltage Adaptable Current Photovoltaic Modules, and Associated Methods" (U.S. Provisional App. No. 60/853,610) (filed October 23, 2006)

In early April 2006, we entered into a non-exclusive patent license agreement with Midwest Research Institute (MRI). MRI manages and serves as operating contractor for the National Renewable Energy Laboratory (NREL) under a prime contract with the U.S. Department of Energy. Pursuant to the prime contract, MRI acquired the rights to license certain inventions developed at NREL. We have acquired a world-wide, non-exclusive commercial license to the following U.S. patents and their foreign counterparts: U.S. Patent Nos. 5,356,839, 5,441,897 and 5,436,204; European Patent No. EP0694209 and European patent application serial no. 95929367.1 (for the European Union, Belgium, France, United Kingdom, Germany and Netherlands); Japanese Patent Nos. 3130943 and 3258667 and Japanese patent application serial no. 8-508088. The license is effective so long as any claim of the licensed inventions is enforceable. We also have obtained a non-exclusive license from the University of Delaware's Institute of Energy Conversion for U.S. Patent Nos. 6,310,281, 6,372,538, 6,537,845 and 6,562,405, as well as U.S. patent application serial No. 60/620,352. These patents and patent applications relate to the fabrication of CIGS on flexible plastic substrates, the use of laser patterning and thin-film deposition during the fabrication of flexible monolithically-integrated CIGS PV devices and certain process steps that we may use during the manufacturing process.

SBIR Research and Development Contracts

We pursue and perform research and development with U.S. government agencies pursuant to the federal government's SBIR program. We have performed, or are performing, research contracts in areas including advanced CIGS related processes with agencies including the U.S. Air Force Laboratory and NASA. We retain ownership of intellectual property developed during performance of these contracts, but the government may exercise "march-in" rights to compel us to license the intellectual property if, for example, it determines that we have failed to achieve practical applications of the developed technologies or if action is necessary to address public health or safety concerns. In 2007, our revenues generated from performance of these contracts totaled approximately $1.0 million. In order to continue to qualify for this type of research funding, we must remain American-owned and independently operated and our size must remain under 500 employees.

Suppliers

We rely on several unaffiliated companies to supply certain raw materials used during the fabrication of our PV modules. We acquire these materials on a purchase order basis and do not have long term contracts with the suppliers, although we may enter into such contracts in the future. We acquire all of our high-temperature plastic from Ube Industries, Ltd. (Japan), 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. We recently announced our intent to explore a strategic relationship with ITOCHU whereby, among other things, ITOCHU would help us source raw materials for our operations. 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 intend to monitor and explore opportunities for developing alternative sources.

Employees

As of February 29, 2008, we had 35 employees (34 full-time), of which 7 were executive officers. We expect the number of employees to grow significantly as we increase our production capacity. We believe our relations with our employees is satisfactory.

Property

Our facilities are located in Littleton, Colorado. We sublease approximately 14,200 square feet of office and manufacturing space at cost from ITN, which occupies space adjacent to ours. ITN leases the property from the Fontana Family Trust. The sublease expires in June 2010. In 2008, we expect to pay ITN approximately $18,990 per month in rent, plus pass-through expenses such as taxes, insurance, water and utilities. We may sublease additional space from ITN as the need arises.

In February 2008, we acquired an approximately 120,000 square foot manufacturing and office facility in Thornton, Colorado. We intend eventually to use the facility to house expanded production capacity and as our corporate headquarters. The facility was purchased from JN Properties, LLC, an unaffiliated third party, for $5.5 million. The building purchase price and improvements were financed by CHFA with the assistance of the State of Colorado's Energy Office and Office of Economic Development.

Legal Proceedings

We do not know of any pending or threatened legal proceedings to which we are or would be a party or any proceedings being contemplated by governmental authorities against us or any of our executive officers or directors relating to their services on our behalf.

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. ITN formed us to commercialize its investment in CIGS PV technologies. Prior to our separation from it, ITN had performed R&D contracts for private and government entities valued at over $60 million related to advanced PV and similar thin-film device 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. Today, ITN still provides to us, at cost, a variety of administrative and technical services such as facilities management, equipment maintenance, procurement, information technology and technical support services. ITN is wholly owned by Inica, Inc. (Inica). Dr. Mohan Misra, Chairman of our Board of Directors, and an immediate family member own all of the outstanding shares of Inica.

MANAGEMENT

Our executive officers and directors and their ages and positions with the Company as of February 29, 2008, are as follows:

Name	Age	Position
Matthew Foster	50	President and Chief Executive Officer
Janet Casteel	47	Chief Accounting Officer and Treasurer
Prem Nath, Ph.D.	59	Senior Vice President of Manufacturing
Ashutosh Misra	42	Senior Vice President of Operations and Corporate Affairs
Joseph Armstrong, Ph.D.	50	Vice President and Chief Technology Officer
Joseph C. McCabe	47	Vice President of Business Development
Mohan S. Misra, Ph.D.	63	Chief Strategy Officer and Chairman of the Board
Stanley A. Gallery	50	Director
Einar Glomnes	38	Director
Amit Kumar, Ph.D.	43	Director
Joel S. Porter	60	Director
T.W. Fraser Russell, Ph.D.	73	Director
Richard J. Swanson	72	Director

Matthew Foster has served as our President and Chief Executive Officer since October 2005. From March 2004 until Ascent's formation in October 2005, Mr. Foster served as Executive Vice President of ITN Energy Systems, Inc., where he developed and implemented plans to commercialize other ITN technologies such as thin-film battery systems and microsatellites, which developed into companies Infinite Power Solutions, Inc. and MicroSat Systems, Inc., respectively. From January 2001 until March 2004, he served as President and Chief Executive Officer of Infinite Power Solutions. Mr. Foster has over 25 years of experience in the aerospace industry and previously served as Vice President of Business Development and Advanced Programs at the Lockheed Martin Corporation. Mr. Foster holds a B.S. degree from Rensselaer Polytechnic Institute.

Janet Casteel has served as our Chief Accounting Officer and Treasurer since February 2006. She served on a part-time basis as our Treasurer and Controller between October 2005 and February 2006, during which time she also served as the part-time business manager of ITN. From 1996 until February 2006, Ms. Casteel served in the capacity of controller and business manager of ITN. At ITN, she supervised the financial and accounting staffs and was responsible for negotiation and administration of ITN's government and commercial contracts, as well as its agreements with subcontractors. She is a member of the American Institute of Certified Public Accountants and is a CPA (inactive) in Colorado. Ms. Casteel holds an Associate Degree in Business Administration from Nebraska College of Business and a B.S. degree in Accounting from Metropolitan State College in Denver.

Prem Nath, Ph.D. has served as our Senior Vice President of Manufacturing since July 2006. From 1998 until July 2006, he served as Vice President of Product Manufacturing and Development at United Solar Ovonic (Uni-Solar) and as Chief Operating Officer of Uni-Solar's Mexican subsidiary. Dr. Nath has over 25 years of professional experience in the development, testing and manufacture of thin-film PV technology and is a named inventor on over 50 U.S. patents covering processes, products and materials. Dr. Nath holds a M.S. degree in Physics from Punjab University in India, a Master of Technology degree in Solid State Physics from the Indian Institute of Technology (IIT) and a Ph.D. in Materials Science from IIT. Dr. Nath also worked as a post-doctoral fellow at the University of California at Los Angeles.

Ashutosh Misra has served as our Senior Vice President of Operations and Corporate Affairs since April 2007. Until that time, Mr. Misra served as a member of our Board of Directors from our inception in October 2005 and participated actively as corporate advisor in guiding the management

team with day to day operations. Mr. Misra also served as Executive Vice President at ITN, where he was responsible for day to day business operations. From November 2002 until March 2005, Mr. Misra served as the president and chief executive officer of Data Access America, a wholly owned subsidiary of Data Access India, Limited, a telecommunications carrier based in India. Prior to joining ITN in 1998 Mr. Misra worked for MTI International for over 8 years as Operations Manager and was responsible for setting up electronic manufacturing and related facilities in the United States, Mexico, Singapore, Indonesia, and India. Mr. Misra holds a Bachelor of Engineering Degree in Electronics and Telecommunications from Bangalore University in India, and a M.S. degree in Electrical Engineering from the University of Wisconsin, Milwaukee. Mr. Misra is the nephew of Dr. Mohan Misra, our Chairman.

Joseph Armstrong, Ph.D. has served as our Vice President and Chief Technology Officer since October 2005. Dr. Armstrong worked at ITN beginning in 1995, and served as the Manager of ITN's Advanced PV Division until joining Ascent in October 2005. While at ITN, Dr. Armstrong led its advancement into thin-film flexible PV products for space and near-space applications and started its development of thin-film battery technologies, a complement to Ascent's thin-film PV technology. Prior to joining ITN, Dr. Armstrong was employed for 10 years by Martin Marietta Corporation, where he managed PV research projects. He is a named inventor on four U.S. patents in areas including shape memory alloys, thin-film PV technology and electronic circuit assembly. Dr. Armstrong holds a B.S. degree in Physics from Lewis University in Illinois and a M.S. degree and Ph.D. in Solid State Physics from the University of Denver.

Joseph C. McCabe has served as our Vice President of Business Development since January 2007. From 1985 until November 2006, Mr. McCabe was the owner and principal of an energy technology consulting firm. In that capacity, he served as a consultant or contractor on projects for the California Energy Commission, the Sacramento Municipal Utility District, Shell Oil and various architecture and engineering firms, and he possesses experience in the area of BIPV products and technologies. Mr. McCabe is a licensed professional engineer and holds a B.S. degree in Mechanical Engineering degree from the University of Dayton, an M.S. degree in Nuclear and Energy Engineering from the University of Arizona, and an M.B.A. from Regis University in Denver, Colorado.

Mohan S. Misra, Ph.D. has served as Chairman of our Board of Directors since October 2005, and as our Chief Strategy Officer since April 2007. He founded and has served as chief executive officer of ITN since 1994. Before founding ITN, Dr. Misra spent 19 years with Martin Marietta Corporation (now Lockheed Martin Corporation) in the areas of material research, development and manufacturing. While at Martin Marietta, Dr. Misra worked first as manager of Research and Technology, and then led the company's development of long term technology strategies. Dr. Misra has helped develop and implement several key technologies for aerospace applications including thin-film PV products, smart materials, advanced composites and lightweight structures. Dr. Misra holds a B.S. degree in Metallurgical Engineering from Benaras Hindu University in India, an M.S. degree in Metallurgical Engineering from the University of Washington and a Ph.D. in Metallurgical Engineering from the Colorado School of Mines. Dr. Misra is the uncle of Ashutosh Misra, our Senior Vice President of Operations and Corporate Affairs.

Stanley A. Gallery has served on our Board of Directors since October 2005. Since 1984, Mr. Gallery has been the chief executive officer of Carts of Colorado, Inc., a provider of mobile merchandising for the food service industry. He also has served as the managing partner of G3 Holdings LLC since 1997, which makes real estate and other investments. He also is a co-founder of Bluegate Creek JV and Bluegate Creek II, which are oil and gas ventures in Wyoming. Prior to joining Ascent, Mr. Gallery served on the board of directors of ITN from 2001 until joining our Board in October 2005.

Einar Glomnes has served on our Board of Directors since March 2007. Since April 2007, Mr. Glomnes has served as the head of Hydro Solar, a division of Norsk Hydro ASA. Norsk Hydro Produksjon AS, a subsidiary of Norsk Hydro ASA, is our largest shareholder. Prior to heading Hydro Solar, Mr. Glomnes served as a Vice President in the business development arm of Norsk Hydro Oil & Energy from 2006 until 2007, and as a lawyer in the legal department of Norsk Hydro ASA from 2004 to 2006. From 2001 until 2004, Mr. Glomnes served as a lawyer with the Schjødt Law Firm in Norway. Since 2004, Mr. Glomnes also has served as a member of the board of directors of Norson AS, a PV ingot and wafer company based in Norway, and as the chairman of Verdane Capital, a private equity investment firm. Mr. Glomnes holds a law degree from the University of Oslo, and an L.L.M. degree from Columbia University School of Law.

Amit Kumar, Ph.D. has served on our Board of Directors since March 2007. Dr. Kumar has served as the President and Chief Executive Officer of CombiMatrix Corporation, a developer of DNA microarrays, since September 2001. He also serves on the board of directors of Aeolus Pharmaceuticals, Inc. Dr. Kumar holds a B.S. degree in Chemistry from Occidental College. After joint studies at Stanford University and the California Institute of Technology (Caltech), he received his Ph.D. from Caltech before completing a post-doctoral fellowship at Harvard University.

Joel S. Porter has served on our Board of Directors since June 2007. Mr. Porter is the President of Centennial Consulting Services, Inc., a consulting firm created after Mr. Porter's retirement from Lockheed Martin in the spring of 2004 as Vice President for International Program Development and Systems Analysis. Mr. Porter had served for approximately 28 years at Lockheed Martin in a variety of management roles. He holds a Bachelor of Aerospace Engineering degree and an M.S. degree in Industrial Management from the Georgia Institute of Technology. He also is a graduate of the Program for Management Development at the Harvard Business School.

T.W. Fraser Russell, Ph.D. has served on our Board of Directors since October 2005. Dr. Russell has served as the Allan P. Colburn Professor in the Department of Chemical Engineering at the University of Delaware since 1981. Dr. Russell is a member of the National Academy of Engineering, a fellow of the American Institute of Chemical Engineers and a registered professional engineer in the State of Delaware. He is the co-inventor of four U.S. patents for the continuous deposition of PV material on moving substrates and is the author of over 100 engineering and scientific papers. He has an industrial background in process design, and he has served as a consultant to a number of firms in the chemical processing industries. Dr. Russell holds a B.Sc. degree and an M.Sc. degree from the University of Alberta in Canada and a Ph.D. from the University of Delaware.

Richard J. Swanson has served on our Board of Directors since January 2007. Since 1991, Mr. Swanson has been a consultant with Vistage International, Inc. (formerly TEC), which focuses on strategic coaching for chief executive officers of public and private companies. Since 1980, he has served as the founder and president of Investment Partners, Inc., which engages in the restructuring and recapitalization of troubled companies, and of Real Estate Associates, Inc., which focuses on real estate acquisition and development. He served as a director and chair of the audit committee of AHPC Holdings, Inc., a publicly traded Illinois-based company in the health care supply field from 1998 until 2007, and serves as a director and chair of the audit committee of ADA-ES, LLC, a publicly traded industrial technology company in Colorado.
Mr. Swanson holds a B.A. in History from the University of Colorado and an M.B.A. from the Harvard Business School.

Board of Directors

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 eight members. Our Board of Directors currently consists of seven members, five of whom are independent under the rules of the Nasdaq Global Market. Our Certificate of Incorporation provides that the Board

of Directors will be divided into three classes as nearly equal in number of directors as possible. Our Class 1 directors are Dr. Amit Kumar, Joel Porter and Richard Swanson. Our Class 2 directors are Stanley Gallery and Dr. T.W. Fraser Russell. Our Class 3 directors are Einar Glomnes and Dr. Mohan Misra. The term of our Class 3 directors expires at our 2008 annual meeting of stockholders.

Committees of the Board of Directors

Our Board of Directors has three standing committees: an Audit Committee, a Compensation Committee and a Nominating and Governance Committee.

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;
- 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 Securities and Exchange Commission requires in our annual proxy statement.

Our Audit Committee is comprised of Mr. Gallery, Dr. Kumar and Mr. Swanson. Mr. Swanson 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 Global Market, and that Mr. Swanson qualifies as an "audit committee financial expert," as defined by the rules of the Securities and Exchange Commission.

Compensation Committee. Our Compensation Committee assists our Board of Directors 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.

Our Compensation Committee is comprised of Mr. Gallery, Dr. Russell and Mr. Swanson. Mr. Gallery serves as Chairman of the Compensation Committee. Our Board of Directors has determined that all members of the Compensation Committee are independent under the rules of the Nasdaq Global Market.

Nominating and Governance Committee. Our Nominating and Governance Committee assists our Board of Directors by identifying and recommending individuals qualified to become members of our

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Board of Directors, 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 of Directors 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 of Directors; and
- evaluating and recommending candidates for election to our Board of Directors.

Our Nominating and Governance Committee is comprised of Mr. Gallery, Dr. Kumar and Dr. Russell. Dr. Kumar serves as Chairman of our Nominating and Governance Committee. Our Board of Directors has determined that all members of the Nominating and Governance Committee are independent under the rules of the Nasdaq Global Market.

Compensation Committee Interlocks and Insider Participation

None of the members of our Compensation Committee is an officer or employee of the Company. None of our executive officers currently serves, or in the past year has served, as a member of the board of directors or compensation committee of any entity that has one or more executive officers serving on our Board of Directors or Compensation Committee.

Code of Ethics

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. 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 Form 8-K current report. The information contained on our website is not part of this prospectus.

PRINCIPAL STOCKHOLDERS

The following table shows information regarding the beneficial ownership of our common stock as of February 29, 2008 and as adjusted to give effect to this offering by:

- each member of our Board of Directors and each of our executive officers;
- all members of our Board of Directors and our executive officers as a group; and
- each person or group who is known by us to own beneficially more than 5% of our common stock.

Beneficial ownership is determined in accordance with the rules of the Securities and Exchange Commission and generally includes any shares over which a person exercises sole or shared voting or investment power. Shares of common stock subject to options or warrants that are currently exercisable or exercisable within 60 days of the date of this prospectus are considered outstanding and beneficially owned by the person holding the options for the purpose of computing the percentage ownership of that person but are not treated as outstanding for the purpose of computing the percentage ownership of any other person.

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., 8120 Shaffer Parkway, Littleton, Colorado 80127.

This table assumes 11,683,628 shares of common stock outstanding as of February 29, 2008, assuming no exercise of outstanding options.

Name of Beneficial Owner	No. of Shares Beneficially Owned	Before This Offering	After This Offering
Officers and Directors			
Matthew Foster[1]	162,090	1.4%	%
Janet Casteel[2]	33,430	*	*
Prem Nath, Ph.D.	0	*	*
Ashutosh Misra[3]	60,000	*	*
Joseph Armstrong, Ph.D.[4]	60,691	*	*
Joseph C. McCabe[5]	7,700	*	*
Mohan S. Misra, Ph.D.[6]	1,233,000	10.6%	
Stanley A. Gallery[7]	106,900	*	*
Einar Glomnes[8]	0	*	*
Amit Kumar, Ph.D.	0	*	*
Joel S. Porter	0	*	*
T.W. Fraser Russell, Ph.D.[9]	16,000	*	*
Richard J. Swanson[10]	8,000	*	*
All directors and executive officers as a group (13 persons)	1,687,811	14.4%	%
5% Stockholders[11]			
ITN Energy Systems, Inc.[12]	818,000	7.0%	%
Norsk Hydro Produksjon AS[13]	4,926,474	35.0%	%
Quercus Trust[14]	1,705,293	14.6%	%
Paulson Capital Corporation[15]	735,000	6.0%	%

* Less than 1.0%.

(1) Includes 105,015 shares of common stock and options to purchase 56,430 shares of common stock that are vested within 60 days of February 29, 2008. Also includes 215 shares of common stock that are held by Mr. Foster's spouse, and 430 Class B warrants that are held by Mr. Foster's spouse and are immediately exercisable.

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(2) Includes 17,000 shares of common stock and options to purchase 16,430 shares of common stock that are vested within 60 days of February 29, 2008.

(3) Includes 36,000 shares of common stock and options to purchase 20,000 shares of common stock that are vested within 60 days of February 29, 2008, and 4,000 Class B warrants that are immediately exercisable.

(4) Includes 49,333 shares of common stock and options to purchase 11,358 shares of common stock that are vested within 60 days of February 29, 2008.

(5) Includes 7,700 shares of common stock.

(6) Includes options to purchase 25,000 shares of common stock that are vested within 60 days of February 29, 2008. Also includes 818,000 shares of common stock that are held by ITN because ITN is wholly-owned by Inica, Inc., which is owned by Dr. Misra and an immediate family member. Also includes 390,000 shares over which Dr. Misra has sole voting and dispositive power.

(7) Includes 82,900 shares of common stock and options to purchase 24,000 shares of common stock that are vested within 60 days of February 29, 2008.

(8) Does not include securities held by Norsk Hydro Produksjon AS, our largest stockholder. Mr. Glomnes is the head of Hydro Solar, an affiliate of Norsk Hydro Produksjon AS, and disclaims beneficial ownership of our securities held by Norsk Hydro Produksjon AS.

(9) Includes 16,000 shares of common stock.

(10) Includes options to purchase 8,000 shares of common stock that are vested within 60 days of February 29, 2008.

(11) Information regarding these stockholders is based solely upon filings made by them with the Securities and Exchange Commission.

(12) The reported address of ITN Energy Systems, Inc. is 8130 Shaffer Parkway, Littleton, Colorado 80127. ITN is wholly-owned by Inica, Inc. Dr. Mohan Misra, Chairman of our Board of Directors, and an immediate family member of his own all of the outstanding shares of Inica, Inc. This information is pursuant to a Schedule 13G filed by ITN, Inica, Inc. and Dr. Misra on February 14, 2008 and a Form 4 filed by ITN on February 21, 2008.

(13) The reported address of Norsk Hydro Produksjon AS is Drammensveien 264, N-0240, Oslo, Norway. Assumes the exercise by Norsk Hydro Produksjon AS of its entire Tranche 2 Option to acquire 2,392,012 shares of common stock and 1,722,226 Class B warrants in addition to the 2,534,462 shares of common stock and 1,965,690 Class B warrants it currently holds. Until June 2009, Norsk Hydro Produksjon AS may only exercise that number of Class B warrants necessary to maintain ownership of 23% of our outstanding common stock (before its Tranche 2 Option is exercised) or of 35% of our outstanding common stock (after its entire Tranche 2 Option has been exercised). This table assumes exercise by Norsk Hydro Produksjon AS of its Tranche 2 Option in order to obtain ownership of 35% of our common stock.

(14) The reported address of Quercus Trust is 2309 Santiago Drive, Newport Beach, California 92660. This information is pursuant to a Schedule 13D filed by Quercus Trust, David Gelbaum (trustee) and Monica Chavez Gelbaum (trustee) on October 1, 2007 and a Form 4 filed by Quercus Trust, David Gelbaum (trustee) and Monica Chavez Gelbaum (trustee) on February 26, 2008.

(15) The address of Paulson Capital Corporation is 811 SW Naito Parkway, Portland, Oregon 97204. Includes 150,000 unexercised warrants (each to purchase one share of common stock, one Class A warrant and two Class B warrants) and 67,500 unexercised Class B warrants, and assumes the exercise of all of those warrants. These securities are held by Paulson Investment Company, a subsidiary of Paulson Capital Corporation, which is controlled by Chester L.F. Paulson and Jacqueline M. Paulson (together, the Paulsons). This information is pursuant to a Schedule 13G filed by the Paulsons, Paulson Capital Corporation and Paulson Investment Company, Inc. on February 11, 2008.

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

Transactions Involving ITN Energy Systems, Inc.

We were formed in October 2005 to commercialize certain technologies developed by ITN. ITN is wholly owned by Inica, Inc., a Colorado corporation (Inica). Dr. Mohan Misra, Chairman of our Board of Directors, and an immediate family member of his own all of the outstanding shares of Inica.

Sublease Agreement. In 2006, we subleased approximately 9,500 square feet of office and manufacturing space at cost from ITN. As of January 1, 2007, we increased our sublease to approximately 14,200 square feet of office and manufacturing space at cost from ITN. The sublease expires in June 2010. In 2007, we paid $17,211 per month of rent through June 30, 2007, and $18,991 per month from July 1, 2007 through December 31, 2007, plus pass-through expenses such as taxes, insurance, water and utilities. Total costs incurred under the Sublease Agreement for the year ended December 31, 2007 were approximately $291,000. In 2008, we expect to pay $18,991 per month in rent to ITN, plus pass-through expenses.

Administrative Services Agreement. ITN has agreed to perform administrative services for us at cost, including services such as facilities management, equipment maintenance, procurement, information technology and technical support. The cost for those services in 2007 was approximately $1,200,000. Although we expect to pay ITN approximately the same amount for those services in 2008, the costs may increase due to commencement of commercial operations and our planned expansion.

Service Center Agreement. From time to time, we may find our own facilities inadequate or unsuitable to handle specific or special tasks or processes, but discover that ITN has such capability. Under a Service Center Agreement, we have the right to use, on an as needed and as available basis, certain of ITN's laboratories, equipment and research and development tools. When we have made periodic use of the laboratories, equipment and tools, we have paid ITN in accordance with ITN's costs. Although the Service Center Agreement expires in December 2009, it is automatically renewable on a month-to-month basis. In 2007, we paid ITN approximately $443,000 under the Service Center Agreement. Although we expect to pay ITN approximately the same amount under the Service Center Agreement in 2008, the costs may increase if we more actively pursue R&D activities.

License Agreement. ITN has granted us a perpetual, royalty-free, worldwide license to use certain trade secrets and other patents, inventions, and trade secrets that ITN may develop or have the right to license that are necessary for use in our PV business. This license is exclusive to us for use in the PV business. The license is perpetual and may only terminated by ITN in the event of a material breach by us that we fail to cure within thirty days' notice of such breach.

Also in 2007, we issued a purchase order to ITN for $1.5 million to develop the CIGS deposition and source box that is located inside the CIGS vacuum chamber of our 1.5 MW production line. Costs billed to us for this work in 2007 were approximately $1.2 million. We expect ITN to complete its work on this purchase order in the first quarter of 2008.

In connection with our formation, in early 2006, ITN assigned to us its CIGS PV-specific technologies, and granted to us a perpetual, exclusive, royalty-free, worldwide license to use certain of ITN's existing and future proprietary process and control technologies that, although non-specific to CIGS PV, we believe will be useful in our production of PV modules for our target markets. See "Business Research and Development and Intellectual Property." After obtaining necessary approvals and pursuant to a novation, ITN also transferred several government-sponsored CIGS PV research and development contracts to us. At the time the contracts were transferred to us in early 2007, the contracts had a remaining contract value of approximately $1.6 million.

Transactions Involving Norsk Hydro Produksjon AS

In March 2007, we sold 1,600,000 shares of our restricted common stock to Norsk Hydro Produksjon AS in a private placement pursuant to Rule 506 of Regulation D and Section 4(2) of the Securities Act. We also granted two options to Norsk Hydro:

An option (the Initial Warrants Option) to purchase restricted Class A warrants (or if the Class A warrants are redeemed, common stock) and restricted Class B warrants that are otherwise identical to the Class A warrants formerly traded, and Class B warrants currently traded, on Nasdaq under the symbols ASTIW and ASTIZ, respectively. Norsk Hydro exercised this option in August 2007 to purchase 934,462 additional shares of common stock and 1,965,690 Class B warrants.

An option (the Tranche 2 Option) to purchase additional shares of restricted common stock, Class A warrants (or if the Class A warrants are redeemed, common stock) and Class B warrants that would result in Norsk Hydro owning up to 35.0% of our issued and outstanding common stock, Class A warrants and Class B warrants. This option became exercisable on December 13, 2007 and expires on June 15, 2009. This option has not yet been exercised. Upon exercise of the Tranche 2 Option, the purchase price of each security obtained will be equal to the average of the closing bids of security in the five consecutive trading days ending on and including the trading day that is one day prior to the date of exercise, as reported by Nasdaq.

In connection with the sale of these securities, Norsk Hydro received: piggyback registration rights that enable them to require us to register for resale the shares held by them if we engage in a registered public offering; and demand registration rights that become effective in March 2008. Norsk Hydro has agreed to waive these piggyback and demand registration rights in connection with this offering. Norsk Hydro also holds pre-emptive rights with respect to certain equity issuances by us (on terms no less favorable than any such issuance) in order to maintain its percentage ownership in our common stock, but the pre-emptive rights do not apply to bona fide underwritten public offerings by us.

Future Transactions

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, and 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.

DESCRIPTION OF SECURITIES

Our authorized capital stock consists of 75,000,000 shares of common stock, $0.0001 par value, and 25,000,000 shares of preferred stock, $0.0001 par value. As of February 29, 2008, we had 11,683,628 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).

Common Stock

Holders of our common stock are entitled to one vote for each share on all matters submitted to a stockholder vote and may not cumulate their votes. Holders of common stock are entitled to share in all dividends that our Board of Directors, in its discretion, declares from legally available funds. In the event of our liquidation, dissolution or winding up, each outstanding share entitles its holder to participate pro rata in all assets that remain after payment of liabilities and after providing for each class of stock, if any, having preference over the common stock.

Except for Norsk Hydro, which holds pre-emptive rights with respect to certain equity issuances by us (on terms no less favorable than any such issuance) in order to maintain its percentage ownership in our common stock, holders of our common stock have no conversion, preemptive or other subscription rights, and there are no redemption provisions applicable to our common stock. The rights of the holders of common stock are subject to any rights that may be fixed for holders of preferred stock.

Preferred Stock

Our Board is authorized by our Certificate of Incorporation to establish classes or series of preferred stock and fix the designation, powers, preferences and rights of the shares of each such class or series and the qualifications, limitations or restrictions thereof without any further vote or action by our stockholders. Any shares of preferred stock so issued could have priority over our common stock with respect to dividend or liquidation rights. Any future issuance of preferred stock may have the effect of delaying, deferring or preventing a change in our control without further action by our stockholders and may adversely affect the voting and other rights of the holders of our common stock. At present we have no plans to issue any shares of preferred stock or to adopt any new series, preferences or other classification of preferred stock.

The issuance of shares of preferred stock, or the issuance of rights to purchase such shares, could be used to discourage an unsolicited acquisition proposal. For instance, the issuance of a series of preferred stock might impede a business combination by including class voting rights that would enable a holder to block such a transaction. In addition, under certain circumstances, the issuance of preferred stock could adversely affect the voting power of holders of our common stock. Although our Board is required to make any determination to issue preferred stock based on its judgment as to the best interests of our stockholders, our Board could act in a manner that would discourage an acquisition attempt or other transaction that some, or a majority, of our stockholders might believe to be in their best interests or in which such stockholders might receive a premium for their stock over the then market price of such stock. Our Board presently does not intend to seek stockholder approval prior to the issuance of currently authorized stock, unless otherwise required by law or applicable stock exchange rules.

Class A Warrants

General. In May 2007, we called all of our outstanding Class A warrants for redemption; consequently, there are no Class A warrants outstanding. However, upon exercise of 112,500 outstanding warrants held by the representative of the underwriters of our IPO, we may issue up to 112,500 Class A warrants to the representative. Because those Class A warrants will be immediately subject to a call for redemption at $0.25 per warrant, the representative will then have to decide whether to exercise its Class A warrants or hold them for redemption. Each Class A warrant entitles the holder to purchase one share of common stock at an exercise price of $6.60 per share.

Redemption. We have the right to redeem the Class A warrants at a price of $0.25 per warrant, after providing 30 days' prior written notice to the Class A warrantholders. In May 2007, we called our outstanding Class A public warrants for redemption, and all such Class A public warrants that remained unexercised as of June 25, 2007, the announced redemption date, are now expired. Consequently, as of February 29, 2008, there were no Class A warrants outstanding, although as of February 29, 2008, 9,090 Class A warrants had not yet been surrendered to our transfer agent for redemption at $0.25 per warrant. However, the representative of the underwriters in our IPO is entitled to receive Class A warrants upon exercise of certain warrants it received in connection with our IPO. Such Class A warrants will not be freely tradeable and will be immediately subject to a call for redemption at $0.25 per warrant. The representative will then have to decide whether to exercise its Class A warrants or hold them for redemption.

Class B Warrants

General. As of February 29, 2008, we had 8,814,678 Class B warrants outstanding. Our Class B warrants may be exercised until their expiration date, which is July 10, 2011. Each Class B warrant entitles the holder to purchase one share of our common stock at an exercise price of $11.00 per share. This exercise price will be adjusted if specific events, summarized below, occur. A holder of Class B warrants will not be deemed a holder of the underlying stock for any purpose until the warrant is exercised. If, at their expiration date, the Class B warrants are not currently exercisable, the expiration date will be extended for 30 days following notice to the holders of the warrants that the warrants are again exercisable. If we cannot honor the exercise of Class B warrants and the securities underlying the Class B warrants are listed on a securities exchange or if there are three independent market makers for the underlying securities, we may, but are not required to, settle the warrants for a price equal to the difference between the closing price of the underlying securities and the exercise price of the warrants.

No Redemption. The Class B warrants are non-redeemable.

Provisions Applicable to the Class A and Class B Warrants

Exercise. The holders of the warrants may exercise them only if a current registration statement is then in effect. Fractional shares of common stock will not be issued upon exercise of the warrants.

Adjustments in Certain Events. The warrants provide for adjustment of the number of shares for which each warrant is exercisable if certain events occur. If we distribute to our stockholders additional shares of common stock through a dividend or distribution, or if we effect a stock split of our common stock, the total number of shares of common stock purchasable on exercise of a warrant will be adjusted so that the holder of a warrant thereafter exercised will be entitled to receive the number of shares of common stock the holder would have owned or received after such event if the warrant holder had exercised the warrant before the event causing the adjustment and held the securities received on such exercise through the record date for the event. The aggregate exercise price of the warrant will remain the same in that circumstance, but the effective purchase price per share of

common stock purchasable upon exercise of the warrant will be proportionately reduced because a greater number of common stock shares will then be purchasable upon exercise of the adjusted warrant. We will make equivalent changes in the warrants if we effect a reverse stock split.

In the event of a capital reorganization or reclassification of our common stock, the warrants will be adjusted so that thereafter each warrant holder will be entitled to receive upon exercise the same number and kind of securities that such holder would have received if the warrant had been exercised before the capital reorganization or reclassification of our common stock and the securities received on such exercise had been held through the record date of the recapitalization.

If we merge or consolidate with another corporation, or if we sell our assets as an entirety or substantially as an entirety to another corporation, we will make provisions so that warrant holders will be entitled to receive upon exercise of a warrant the kind and number of securities, cash or other property that would have been received as a result of the transaction by a person who was our stockholder immediately before the transaction and who owned the same number of shares of common stock for which the warrant was exercisable immediately before the transaction. No adjustment to the warrants will be made, however, if a merger or consolidation does not result in any reclassification or change in our outstanding common stock.

2005 Stock Option Plan

Our 2005 Stock Option Plan, as amended (the Option Plan), currently authorizes the grant of up to 1,000,000 shares of common stock (subject to adjustment for stock splits and similar capital changes) in connection with incentive stock option grants and non-qualified stock option grants. Employees and, in the case of nonqualified stock options, directors, consultants or other service providers are eligible to receive grants under our plans. According to the terms of the Option Plan, no employee may be granted, in any fiscal year, options to purchase more than 100,000 shares. As of February 29, 2008, there were outstanding and unexercised options to purchase 605,910 shares under our Option Plan.

Norsk Hydro Options

In March 2007, we sold 1,600,000 shares of our restricted common stock to Norsk Hydro Produksjon AS in a private placement pursuant to Rule 506 of Regulation D and Section 4(2) of the Securities Act. We also granted two options to Norsk Hydro:

The Initial Warrants Option to purchase restricted Class A warrants (or if the Class A warrants are redeemed, common stock) and restricted Class B warrants that are otherwise identical to the Class A warrants formerly traded, and Class B warrants currently traded, on Nasdaq under the symbols ASTIW and ASTIZ, respectively. Norsk Hydro exercised this option in August 2007 to purchase 934,462 additional shares of common stock and 1,965,690 Class B warrants.

The Tranche 2 Option to purchase additional shares of restricted common stock, Class A warrants (or if the Class A warrants are redeemed, common stock) and Class B warrants that would result in Norsk Hydro owning up to 35.0% of our issued and outstanding common stock, Class A warrants and Class B warrants. This option became exercisable on December 13, 2007 and expires on June 15, 2009. This option has not yet been exercised. Upon exercise of the Tranche 2 Option, the purchase price of each security obtained will be equal to the average of the closing bids of security in the five consecutive trading days ending on and including the trading day that is one day prior to the date of exercise, as reported by Nasdaq.

In connection with the sale of these securities, Norsk Hydro received: piggyback registration rights that enable them to require us to register for resale the shares held by them if we engage in a registered public offering; and demand registration rights that become effective in March 2008. Norsk Hydro has agreed to waive these piggyback and demand registration rights in connection with this

offering. Norsk Hydro also holds pre-emptive rights with respect to certain equity issuances by us (on terms no less favorable than any such issuance) in order to maintain its percentage ownership in our common stock, but the pre-emptive rights do not apply to bona fide underwritten public offerings by us.

IPO Warrants

In connection with our IPO, we issued warrants (IPO Warrants) to purchase 300,000 units (each unit consisting of one share of common stock, one Class A warrant and two Class B warrants) to the representative of the underwriters of our IPO. The IPO Warrants may be exercised until July 10, 2011. As of February 29, 2008, IPO Warrants to purchase 112,500 units remain unexercised. To the extent that holders of the IPO Warrants are entitled to receive Class A warrants upon exercise of the IPO Warrants, those Class A warrants will be immediately subject to a call for redemption at $0.25 per warrant. The holders will then have to decide whether to exercise their Class A warrants or hold them for redemption. We have agreed to keep a registration statement covering the issuance and resale of the securities underlying the IPO Warrants effective until the earlier of July 10, 2011 and the time that all of the IPO Warrants have been exercised. If we cannot honor the exercise of the IPO Warrants and the securities underlying the IPO Warrants are listed on a securities exchange or if there are three independent market makers for the underlying securities, we may, but are not required to, settle the IPO Warrants for a price equal to the difference between the closing price of the underlying securities and the exercise price of the IPO Warrants. Because we are not required to settle the IPO Warrants by payment of cash, it is possible that the IPO Warrants will never be settled in shares or payment of cash.

Authorized but Unissued Shares

The authorized but unissued shares of common and preferred stock are available for future issuance without stockholder approval, unless otherwise required by law or applicable stock exchange rules. These additional shares may be used for a variety of corporate purposes, including future public offerings to raise additional capital, corporate acquisitions and employee benefit plans. The existence of authorized but unissued shares could hinder or discourage an attempt to obtain control of us by means of a proxy contest, tender offer, merger or otherwise.

Anti-Takeover Effects of Certain Provisions of Delaware Law and Our Certificate of Incorporation and Bylaws

Our Certificate of Incorporation and Bylaws contain a number of provisions that could make our acquisition by means of a tender or exchange offer, a proxy contest or otherwise more difficult. These provisions are summarized below.

Removal of Directors. Our Bylaws provide that our directors may only be removed by the affirmative vote of the shares entitled to vote at an election of directors, or for cause by a majority of the Board. Although our Bylaws do not give the Board the power to approve or disapprove stockholder nominations for the election of directors or of any other business stockholders desire to conduct at an annual or any other meeting, the Bylaws may have the effect of precluding a nomination for the election of directors or precluding the conduct of business at a particular annual meeting if the proper procedures are not followed, or discouraging or deterring a third party from conducting a solicitation of proxies to elect its own slate of directors or otherwise attempting to obtain control, even if the conduct of that solicitation or attempt might be beneficial to our stockholders.

Staggered Board. Staggered terms tend to protect against sudden changes in management and may have the effect of delaying, deferring or preventing a change in our control without further action by our stockholders. Our Board is divided into three classes, with one class of directors elected at each year's annual stockholder meeting.

Special Meetings. Our Bylaws provide that special meetings of stockholders can be called by the President, at the request of a majority of the Board or at the written request of holders of at least 50% of the shares outstanding and entitled to vote.

Undesignated Preferred Stock. The ability to authorize undesignated preferred stock makes it possible for our Board of Directors to issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to acquire us. These and other provisions may have the effect of deferring hostile takeovers or delaying changes in control or management of our Company.

Delaware Anti-Takeover Statute. We are subject to the provisions of Section 203 of the Delaware General Corporation Law regulating corporate takeovers. In general, Section 203 prohibits a publicly held Delaware corporation from engaging under certain circumstances in a business combination with an interested stockholder for a period of three years following the date the person became an interested stockholder unless:

Prior to the date of the transaction that resulted in the stockholder becoming an interested stockholder, the board of directors of the corporation approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder.

Upon completion of the transaction that resulted in the stockholder becoming an interested stockholder, the stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the number of shares outstanding (1) shares owned by persons who are directors and also officers and (2) shares owned by employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer.

On or subsequent to the date of the transaction that resulted in the stockholder becoming an interested stockholder, the business combination is approved by the board and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least $66^{2}/_{3}\%$ of the outstanding voting stock which is not owned by the interested stockholder.

Generally, a business combination includes a merger, asset or stock sale, or other transaction resulting in a financial benefit to the interested stockholder. An interested stockholder is a person who, together with affiliates and associates, owns or, within three years prior to the determination of interested stockholder status, did own 15% or more of a corporation's outstanding voting securities. We expect the existence of this provision to have an anti-takeover effect with respect to transactions our Board does not approve in advance. We also anticipate that Section 203 may also discourage attempts that might result in a premium over the market price for the shares of common stock held by stockholders.

The provisions of Delaware law, our Certificate of Incorporation and our Bylaws could have the effect of discouraging others from attempting hostile takeovers and, as a consequence, they may also inhibit temporary fluctuations in the market price of our common stock that often result from actual or rumored hostile takeover attempts. These provisions may also have the effect of preventing changes in our management. It is possible that these provisions could make it more difficult to accomplish transactions that stockholders may otherwise deem to be in their best interests.

Listing

Our common stock is listed on the Nasdaq Global Market under the trading symbol "ASTI."

Transfer Agent and Registrar

The transfer agent and registrar of our common stock is Computershare Investor Services.

SHARES ELIGIBLE FOR FUTURE SALE

Future sales of substantial amounts of our common stock, including shares issued upon exercise of outstanding options and warrants, in the public market following this offering could adversely affect market prices prevailing from time to time and could impair our ability to raise capital through the sale of our equity securities.

Upon completion of this offering, we will have a total of shares of common stock issued and outstanding, based on our shares outstanding at February 29, 2008. Of the shares to be outstanding upon completion of this offering, a total of shares, including (i) 3,782,694 shares sold in our initial public offering and issued to certain bridge lenders in July 2006 and shares issued upon exercise of IPO Warrants, Class A warrants and Class B warrants and (ii) shares sold in this offering, will be freely tradable without restriction under the Securities Act, unless purchased by our "affiliates," as that term is defined in Rule 144 of the Securities Act.

Of the remaining shares of common stock outstanding immediately after this offering, shares are "restricted shares" as that term is defined in Rule 144 under the Securities Act and/or are subject to lock-up agreements with the underwriters providing that those stockholders subject to the lock-up agreements will not offer, sell, contract to sell or otherwise dispose of any common stock or any securities that are convertible into common stock for a period of 90 days after the date of this prospectus (which period could be extended for up to an additional 34 days under certain circumstances) without the prior written consent of Bear, Stearns & Co. Inc. Bear, Stearns & Co. Inc., in its sole discretion, may release the shares subject to these lock-up agreements in whole or in part at any time without notice.

Restricted securities may be sold in the public market only if registered or if they qualify for an exemption from registration under Rule 144 or 701 under the Securities Act, which are summarized below. Subject to the provisions of Rules 144 and 701, additional shares of our common stock will be available for sale in the public market under exemptions from the registration requirements as follows.

Rule 144

On November 15, 2007, the SEC adopted amendments to Rule 144 that are effective for any sales of restricted securities made under Rule 144 beginning on February 15, 2008. The recently adopted amendments, among other things, shorten the holding periods for restricted securities for both non-affiliates and affiliates under Rule 144. Rule 144, as amended, provides that non-affiliates that have held restricted securities of a reporting company for at least six months and have not had an affiliate relationship with us during the preceding three months may sell their securities without restriction or limitation, other than that Rule 144's public information requirements must be satisfied during the six months following satisfaction of the six-month holding period requirement. The amendments to Rule 144 permit affiliates that have held restricted securities for at least six months to sell such restricted securities in accordance with the traditional conditions of Rule 144, including the public information requirement, the volume limitations, manner of sale provisions and notice requirements. In particular, an affiliate who has beneficially owned shares of our common stock for at least six months would be entitled to sell within any three-month period a number of shares that does not exceed the greater of:

- 1% of the number of shares of our common stock then outstanding, which will equal approximately shares immediately after this offering; or
- the average weekly trading volume of our common stock on the Nasdaq Global Market during the four calendar weeks preceding the filing of a notice on Form 144 with respect to the sale.

Rule 701

In general, under Rule 701 of the Securities Act, any of our employees, directors, officers, consultants or advisors who purchased shares from us in connection with a compensatory stock or option plan or other written agreement is eligible to resell those shares in reliance on Rule 144, but without compliance with certain restrictions, including the holding period contained in Rule 144. However, shares issued to our directors and officers under Rule 701 are subject to lock-up agreements and will only become eligible for sale at the expiration of such agreements, unless Bear, Stearns & Co. Inc., in its sole discretion at any time without notice, releases all or any portion of the securities subject to lock-up agreements.

Lock-Up Agreements

We, along with our directors, executive officers, Norsk Hydro and ITN, have agreed with the underwriters that we and they will not offer, sell, contract to sell or otherwise dispose of any common stock or any securities that are convertible into common stock for a period of 90 days from the date of this prospectus without the prior written consent of Bear, Stearns & Co. Inc. Bear, Stearns & Co. Inc., in its sole discretion, may release the shares subject to these lock-up agreements in whole or in part at any time without notice. When determining whether to release shares from these lock-up agreements, Bear, Stearns & Co. Inc. will consider, among other factors, the stockholder's reason for requesting the release, the number of shares for which the release is being requested and market conditions at the time. Bear, Stearns & Co. Inc. does not at this time have any intention of releasing any of the shares subject to these lock-up agreements prior to the expiration of the lock-up period.

The 90-day lock-up period described in the preceding paragraph will be extended if:

during the last 17 days of the 90-day restricted period we issue a release regarding earnings or regarding material news or events relating to us; or

prior to the expiration of the 90-day restricted period, we announce that we will release earnings results during the 16-day period beginning on the last day of the 90-day period,

in which case the restrictions described in the preceding paragraph will continue to apply until the expiration of the 18-day period beginning on the issuance of the release or the occurrence of the material news or material event.

Stock Options and Warrants

As of February 29, 2008, there were outstanding and unexercised options to purchase 605,910 shares under our Option Plan. These shares have been registered by us on a Form S-8 registration statement and after issuance, unless subject to a lock-up agreement with the underwriters, may be sold by the option holder in the public market.

As of February 29, 2008, we had 8,814,678 Class B warrants outstanding. Each Class B warrant entitles the holder to purchase one share of our common stock at an exercise price of $11.00 per share, subject to adjustment in certain events. As of February 29, 2008, IPO Warrants to purchase 112,500 units remain unexercised. Each IPO Warrant entitles the warrant holder to purchase one share of common stock, one Class A warrant and two Class B warrants. The shares issuable upon exercise of the IPO Warrants and all of the Class A warrants and Class B warrants have been registered for resale on a Form S-3 registration statement and, unless subject to a lock-up agreement with the underwriters, may be sold by the holders in the public market.

Registration Rights

In connection with the private placement of our securities to Norsk Hydro in March 2007, Norsk Hydro received piggyback registration rights that enable Norsk Hydro to require us to register for resale the shares held by Norsk Hydro if we engage in a registered public offering and demand registration rights that become effective on March 13, 2008. Norsk Hydro has waived (i) such piggyback rights in connection with this offering and (ii) such demand rights until the earlier of May 31, 2008 and the closing of this offering. Norsk Hydro also holds pre-emptive rights with respect to certain equity issuances by us (on terms no less favorable than any such issuance) in order to maintain its percentage ownership in our common stock; however pursuant to the Stockholders Agreement between us and Norsk Hydro such pre-emptive rights do not apply to securities issued in connection with a bona fide underwritten public offering. See "Certain Relationships and Related Party Transactions Transactions Involving Norsk Hydro Produksjon AS."

CERTAIN MATERIAL U.S. FEDERAL TAX CONSEQUENCES FOR NON-U.S. HOLDERS

The following discussion is a summary of certain United States federal income and estate tax consequences relevant to non-U.S. holders (defined below) with respect to the purchase, ownership and disposition of our common stock issued pursuant to this offering. This discussion is based upon the Internal Revenue Code of 1986, as amended, United States Treasury Regulations, or the Treasury Regulations, Internal Revenue Service, or IRS, published rulings and administrative and judicial decisions currently in effect, all of which are subject to change (possibly with retroactive effect) or possible differing interpretations. This discussion is not tax advice. Accordingly, all prospective non-U.S. holders of our common stock should consult their own tax advisors with respect to the United States federal, state and local and non-U.S. tax consequences of an investment in our common stock. No assurance exists that the IRS will not challenge any of the tax consequences described herein, and we have not obtained, nor do we intend to obtain, an opinion of counsel with respect to the United States federal income or estate tax consequences to a non-U.S. holder of our common stock.

This discussion is limited to the tax consequences to those non-U.S. holders who hold our common stock as capital assets (generally, for investment purposes). This discussion does not purport to deal with persons in special tax situations, such as financial institutions, regulated investment companies, real estate investment trusts, tax-exempt organizations, dealers in securities or currencies, traders in securities that elect to mark to market, "controlled foreign corporations," "passive foreign investment companies," corporations that accumulate earnings to avoid federal income tax, persons holding shares of our common stock as a hedge against currency risk or as a position in a "straddle" or conversion transaction or persons subject to the alternative minimum tax. This discussion does not address the tax consequences to partnerships or other pass-through entities or persons investing through such partnerships or entities. Also, this discussion does not address all aspects of United States federal income and estate taxation that may be relevant to a particular non-U.S. holder in light of that non-U.S. holder's individual circumstances nor does it address any aspects of United States state or local or non-U.S. taxes.

For purposes of this discussion, a "non-U.S. holder" means a beneficial owner of our common stock that is not, for United States federal income tax purposes, (1) a citizen or resident alien of the United States, (2) a corporation (or other entity taxed as a corporation for United States federal income tax purposes) created or organized in the United States or under the laws of the United States, any state thereof or the District of Columbia, (3) an estate the income of which is subject to United States federal income taxation regardless of its source, or (4) a trust whose administration is subject to the primary supervision of a court within the United States and which has one or more United States persons with the authority to control all substantial decisions of the trust or a trust that was in existence on August 20, 1996 that has elected to be treated as a "United States person" (as defined for federal income tax purposes).

If a partnership (or other entity taxed as a partnership for U.S. federal income tax purposes) holds common stock, the tax treatment of a partner will generally depend upon the status of the partner and the activities of the partnership. A partnership and a partner of a partnership holding our common stock are urged to consult their tax advisors.

PROSPECTIVE INVESTORS CONSIDERING THE PURCHASE OF OUR COMMON STOCK SHOULD CONSULT THEIR TAX ADVISORS CONCERNING THE APPLICATION OF UNITED STATES FEDERAL TAX LAWS TO THEIR PARTICULAR SITUATIONS AS WELL AS ANY CONSEQUENCES ARISING UNDER THE LAWS OF ANY OTHER TAXING JURISDICTION.

Distributions and Dividends

Generally, distributions paid to a non-U.S. holder with respect to our common stock will constitute dividends for United States federal income tax purposes to the extent paid from our current or

accumulated earnings and profits, as determined under United States federal income tax principles. If a distribution exceeds our current and accumulated earnings and profits, the excess will be treated as a tax-free return of the non-U.S. holder's investment, up to such holder's tax basis in the common stock. Any remaining excess will be treated as capital gain, subject to the tax treatment described below in "Sale, Exchange or Other Taxable Disposition."

Dividends paid to a non-U.S. holder will be subject to a 30% U.S. withholding tax, unless (i) a lower rate is specified by an applicable income tax treaty and the non-U.S. holder provides proper documentation certifying eligibility for such lower rate (*e.g.,* on an IRS Form W-8BEN or applicable substitute form) or (ii) such dividends are effectively connected with a trade or business carried on by the non-U.S. holder within the United States and the non-U.S. holder provides an IRS Form W-8ECI or applicable substitute form. Dividends effectively connected with such trade or business, and, if a treaty applies, attributable to a permanent establishment or, in the case of an individual, a fixed base maintained by such non-U.S. holder in the United States will be subject to regular United States federal income tax on the dividends in the same manner as if the non-U.S. holder were a U.S. person. If dividends are effectively connected with a trade or business in the United States of a non-U.S. holder that is a corporation, such corporate non-U.S. holder also may be subject to a "branch profits tax" at a 30% rate (or such lower rate as may be specified by an applicable income tax treaty) subject to certain adjustments.

Sale, Exchange or Other Taxable Disposition

A non-U.S. holder generally will not be subject to United States federal income or withholding tax on gain realized on the sale, exchange or other taxable disposition of our common stock provided that:

- the gain is not effectively connected with a trade or business carried on by the non-U.S. holder within the United States (or, if an income tax treaty applies, the gain is not attributable to a U.S. permanent establishment or, in the case of an individual, a fixed base maintained by such non-U.S. holder in the United States);

- in the case of a non-U.S. holder that is an individual, such holder is not present in the United States for 183 or more days in the taxable year of the sale or disposition, and such individual is not a U.S. lawful permanent resident; and

- we are not and have not been a United States real property holding corporation for U.S. federal income tax purposes at any time during the five-year period preceding such sale or other disposition.

We believe that we have not been and are not currently a United States real property holding corporation, and we do not expect to become one in the future based on anticipated business operations; however, no assurances can be provided in this regard.

United States Federal Estate Tax

Shares of our common stock that are owned or treated as owned by an individual non-U.S. holder, as specifically defined for U.S. federal estate tax purposes, at the time of death will be included in the individual's gross estate for United States federal estate tax purposes, and therefore may be subject to United States federal estate tax, unless an applicable estate tax or other treaty provides otherwise.

Information Reporting and Backup Withholding

We must report annually to the IRS and to each non-U.S. holder the amount of dividends paid to such holder and the tax withheld with respect to such dividends, regardless of whether withholding was required. Copies of the information returns reporting such dividends and withholding may also be made available under the provisions of an applicable income tax treaty or agreement to the tax authorities in

the country in which the non-U.S. holder resides. United States backup withholding (currently at a rate of 28%) generally will apply on payment of dividends to a non-U.S. holder unless such non-U.S. holder furnishes to the payor an IRS Form W-8BEN (or other applicable form), or otherwise establishes an exemption.

Generally, payment by a U.S. office of a broker of the proceeds of a sale of our common stock is subject to both backup withholding and information reporting unless the non-U.S. holder certifies that it is a non-U.S. holder on IRS Form W-8BEN, or otherwise establishes an exemption. Payments of the proceeds from the sale by a non-U.S. holder of our common stock made to or through a non-U.S. office of a broker generally will not be subject to information reporting or backup withholding. However, information reporting requirements (but not backup withholding) generally will apply to a payment made outside the United States of the proceeds of a sale of our common stock through an office outside the United States of a broker (i) that is a U.S. person, (ii) 50% or more of the gross income of which for a specified three-year period is effectively connected with the conduct of a trade or business in the United States, (iii) that is a "controlled foreign corporation," or (iv) that is a foreign partnership, if at any time during its tax year, one or more of its partners are U.S. persons (as defined in Treasury Regulations) who in the aggregate hold more than 50% of the income or capital interest in the partnership or if, at any time during its tax year, such foreign partnership is engaged in a U.S. trade or business, unless the broker has documentary evidence in its files that the beneficial owner is a non-U.S. holder or the holder otherwise establishes an exemption.

Backup withholding is not an additional tax. Any amount withheld under the backup withholding rules from a payment to a holder is allowable as a credit against such holder's United States federal income tax, which may entitle the holder to a refund, provided that the holder timely provides the required information to the IRS.

Prospective non-U.S. holders of our common stock should consult their tax advisors with respect to the federal, state, local and foreign tax consequences of the acquisition, ownership and disposition of our common stock.

UNDERWRITING

We intend to offer the shares of our common stock through the underwriters. Subject to the terms and conditions in an underwriting agreement among us and Bear, Stearns & Co. Inc., acting as representative of the underwriters named below for this offering, we have agreed to sell to the underwriters, and the underwriters severally have agreed to purchase from us the number of shares of common stock listed opposite their names below.

Underwriters	Number of Shares
Bear, Stearns & Co. Inc.	
Cowen and Company, LLC	
Jefferies & Company, Inc.	
Merriman Curhan Ford & Co.	
Total	

The underwriters have agreed to purchase all of the shares sold under the underwriting agreement if any of these shares are purchased. If an underwriter defaults, the underwriting agreement provides that the purchase commitments of the non-defaulting underwriters may be increased or the underwriting agreement may be terminated.

We have agreed to indemnify the underwriters against certain liabilities, including liabilities under the Securities Act, or to contribute to payments the underwriters may be required to make in respect of those liabilities.

The underwriters are offering the shares, subject to prior sale, when, as and if issued to and accepted by them, subject to approval of legal matters by their counsel, including the validity of the shares, and other conditions contained in the underwriting agreement, such as the receipt by the underwriters of officer's certificates and legal opinions. The underwriters reserve the right to withdraw, cancel or modify offers to the public and to reject orders in whole or in part.

Other Relationships

The underwriters may, from time to time, engage in transactions with and perform services for us in the ordinary course of their business.

Commissions and Discounts

The underwriters have advised us that they propose initially to offer the shares to the public at the public offering price on the cover page of this prospectus and to dealers at that price less a concession not in excess of $ per share. The underwriters may allow, and the dealers may reallow, a discount not in excess of $ per share to other dealers. After the public offering, the public offering price, concession and discount may be changed.

The following table shows the public offering price, underwriting discount and proceeds before expenses to us. The information assumes either no exercise or full exercise by the underwriters of their over-allotment option.

	Per Share	Without Option	With Option
Public offering price	$	$	$
Underwriting discount	$	$	$
Proceeds, before expenses, to Ascent	$	$	$

The expenses of the offering, excluding the underwriting discount and commissions and related fees, are estimated at $ million and are payable by us.

Over-Allotment Option

We have granted the underwriters an option exercisable for 30 days from the date of this prospectus to purchase a total of up to additional shares at the public offering price less the underwriting discount. The underwriters may exercise this option solely to cover any over-allotments, if any, made in connection with this offering. To the extent the underwriters exercise this option in whole or in part, each will be obligated, subject to conditions contained in the underwriting agreement, to purchase a number of additional shares approximately proportionate to that underwriter's initial commitment amount reflected in the above table.

If the underwriters sell more shares than could be covered by the over-allotment option, a naked short position would be created that can only be closed out by buying shares in the open market. A naked short position is more likely to be created if the underwriters are concerned that there could be downward pressure on the price of the shares in the open market after pricing that could adversely affect investors who purchase in the offering.

No Sales of Similar Securities

Subject to certain exceptions, we and each of our directors and executive officers, Norsk Hydro and ITN have agreed not to sell or transfer any shares of our common stock for 90 days after the date of this prospectus (which period could be extended by the underwriters for up to an additional 34 days under certain circumstances) without first obtaining the written consent of Bear, Stearns & Co. Inc.

The 90-day period described in the preceding paragraph will be automatically extended if: (i) during the last 17 days of the 90-day period we issue an earnings release or announce material news or a material event; or (ii) prior to the expiration of the 90-day period, we announce that we will release earnings results during the 16-day period following the last day of the 90-day period, in either of which case the restrictions described in the preceding paragraph will continue to apply until the expiration of the 18-day period beginning on the issuance of the earnings release or the announcement of the material news or material event.

Stabilization, Short Positions and Penalty Bids

The underwriters may engage in over-allotment, stabilizing transactions, syndicate covering transactions and penalty bids in accordance with Regulation M under the Securities Exchange Act of 1934, as amended.

Over-allotment involves syndicate sales in excess of the offering size, which creates a syndicate short position.

Stabilizing transactions permit bids to purchase the underlying security so long as the stabilizing bids do not exceed a specified maximum.

Syndicate covering transactions involve purchases of the common stock in the open market after the distribution has been completed in order to cover syndicate short positions.

Penalty bids permit the representatives to reclaim a selling concession from a syndicate member when the common stock originally sold by the syndicate member is purchased in a syndicate covering transaction to cover syndicate short positions.

Stabilizing transactions, syndicate covering transactions and penalty bids may cause the price of our common stock to be higher than it would otherwise be in the absence of these transactions. These

transactions may be effected on Nasdaq or otherwise and, if commenced, may be discontinued at any time.

Nasdaq Listing

Our common stock is traded on the Nasdaq Global Market under the symbol "ASTI."

Sales in Other Jurisdictions

Each of the underwriters may arrange to sell shares in certain jurisdictions outside the United States through affiliates, either directly where they are permitted to do so or through affiliates.

This document and any other material in relation to the shares described herein is only being distributed to, and is only directed at, persons in the United Kingdom that are qualified investors within the meaning of Article 2(1)(e) of the Prospectus Directive (qualified investors), or fewer than 100 natural or legal persons in the United Kingdom other than qualified investors which, in both cases, are also (i) investment professionals falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (the Order); or (ii) high net worth entities or other persons falling within Article 49(2)(a) to (d) of the Order (all such persons together being referred to as "relevant persons"). Any person in the United Kingdom that is not a relevant person should not act or rely on this document or any of its contents.

The shares, including any subscription rights related thereto, may not be publicly offered or sold in or from Switzerland, and neither this prospectus nor any other offering material relating to the shares may be distributed, or otherwise made available in connection with any such offering or sale. The shares may only be offered or sold and the prospectus may only be distributed, or otherwise made available in Switzerland on a private placement basis to a limited number of investors without any public offering.

The shares (i) will not be offered or sold, directly or indirectly, to the public (*appel public á l' épargne*) in the Republic of France and (ii) offers and sales of shares in the Republic of France (a) will only be made to qualified investors (*investisseurs qualifiés*), acting solely for their own account, as defined in, and in accordance with, Articles L.411-1, L.411-2 and D.411-1 to D.411-3, D.734-1, D.744-1, D.754-1, D.764-1 of the French Code monétaire et financier or (b) will be made in any other circumstances which do not require the publication by the issuer of a prospectus pursuant to Article L.411-2 of the Code monétaire et financier and Article 211-2 of the Réglement Général of the Autorité des marchés financiers.

Investors are informed that this prospectus has not been admitted to the clearance procedures of the Autorité des marchés financiers, and that any subsequent direct or indirect circulation to the public of the shares so acquired may not occur without meeting the conditions provided for in Articles L.411-1, L.411-2, L.412-2 and L.621-8 to L.621-8-3 of the French Code monétaire et financier.

In relation to each Member State of the European Economic Area which has implemented the Prospectus Directive (each, a Relevant Member State), each purchaser of the shares acknowledges that with effect from and including the date on which the Prospectus Directive is implemented in that Relevant Member State (the Relevant Implementation Date), it has not made and will not make an offer of shares to the public may be made in that Relevant Member State prior to the publication of a prospectus in relation to the shares which has been approved by the competent authority in that Relevant Member State or, where appropriate, approved in another Relevant Member State and notified to the competent authority in that Relevant Member State, all in accordance with the

Prospectus Directive, except with effect from and including the Relevant Implementation Date, an offer of shares may be made to the public in that Relevant Member State at any time:

to legal entities which are authorized or regulated to operate in the financial markets or, if not so authorized or regulated, whose corporate purpose is solely to invest in securities;

to any legal entity which has two or more of (1) an average of at least 250 employees during the last financial year; (2) a total balance sheet of more than €43,000,000; and (3) an annual net turnover of more than €50,000,000, as shown in its last annual or consolidated accounts; or

in any other circumstances which do not require the publication by the issuer of a prospectus pursuant to Article 3 of the Prospectus Directive.

For the purposes of this provision, the expression an "offer of shares to the public" in relation to any shares in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and the shares to be offered so as to enable an investor to decide to purchase or subscribe the shares, as the same may be varied in that Member State by any measure implementing the Prospectus Directive in that Member State and the expression "Prospectus Directive" means Directive 2003/71/EC and includes any relevant implementing measure in each Relevant Member State.

Hong Kong

The shares may not be offered for sale or sold in Hong Kong, by means of any document, other than (a) to "professional investors" as defined in the Securities and Futures Ordinance (Cap. 571) of Hong Kong (Companies Ordinance) and any rules made under the Companies Ordinance; or (b) in other circumstances which do not result in the document being a "prospectus" as defined in the Companies Ordinance (Cap. 32) of Hong Kong or which do not constitute an offer to the public within the meaning of the Companies Ordinance.

No advertisement, invitation or document relating to the shares has been issued or will be issued, whether in Hong Kong or elsewhere, which is directed at, or the contents of which are likely to be accessed or read by, the public in Hong Kong (except if permitted to do so under the securities laws of Hong Kong) other than with respect to shares which are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" within the meaning of the Companies Ordinance and any rules made thereunder.

Singapore

The prospectus has not been registered as a prospectus with the Monetary Authority of Singapore under the Securities and Futures Act, Chapter 289 of Singapore (the Securities and Futures Act). Accordingly, the shares may not be offered or sold or made the subject of an invitation for subscription or purchase nor may the prospectus or any other document or material in connection with the offer or sale or invitation for subscription or purchase of any shares be circulated or distributed, whether directly or indirectly, to any person in Singapore other than (a) to an institutional investor pursuant to Section 274 of the Securities and Futures Act, (b) to a relevant person, or any person pursuant to Section 275(1A) of the Securities and Futures Act, and in accordance with the conditions specified in Section 275 of the Securities and Futures Act, or (c) pursuant to, and in accordance with the conditions of, any other applicable provision of the Securities and Futures Act.

Each of the following relevant persons specified in Section 275 of the Securities and Futures Act which has subscribed or purchased the shares, namely a person who is:

(a) a corporation (which is not an accredited investor) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or

(b) a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary is an accredited investor,

should note that shares, debentures and units of shares and debentures of that corporation or the beneficiaries' rights and interest in that trust shall not be transferable for 6 months after that corporation or that trust has acquired the shares under Section 275 of the Securities and Futures Act except:

(1) to an institutional investor under Section 274 of the Securities and Futures Act or to a relevant person, or any person pursuant to Section 275(1A) of the Securities and Futures Act, and in accordance with the conditions, specified in Section 275 of the Securities and Futures Act;

(2) where no consideration is given for the transfer; or

(3) by operation of law.

Notice to residents of Australia

This document does not constitute a disclosure document or a product disclosure statement for the purposes of the Corporations Act 2001 of the Commonwealth of Australia (the "Corporations Act") and has not been, and will not be, lodged with the Australian Securities and Investments Commission. The shares will be offered to persons who receive offers in Australia only to the extent that both (a) those persons are "Wholesale Clients" for the purposes of Chapter 7 of the Corporations Act; and (b) such offers of shares for issue or sale do not need disclosure to investors under Part 6d.2 of the Corporations Act.

Any offer of shares received in Australia is void to the extent that it needs disclosure to investors under the Corporations Act. In particular, offers for the issue or sale of shares will only be made, and this document may only be distributed, in Australia in reliance on various exemptions from such disclosure to investors provided by section 708 of the Corporations Act ("section 708") and where the investors are also "wholesale clients" as described above.

As the offer for the issue of shares will be made in Australia without disclosure under the Corporations Act, the offer of those shares for sale in Australia within 12 months of their issue may, under section 707(3) or 1012c(6) of the Corporations Act, require disclosure to investors under the Corporations Act if none of the exemptions under the Corporations Act applies. Accordingly, any person to whom shares are issued or sold pursuant to this document must not, within 12 months after the issue, offer (or transfer, assign or otherwise alienate) those shares to investors in Australia except in circumstances where disclosure to investors is not required under the Corporations Act or unless a compliant disclosure document or product disclosure statement is prepared and lodged with the Australian securities and investments commission. Disclosure to investors would not generally be required:

(a) under Part 6d.2 of the Corporations Act where:

(i) the shares are offered for sale on a stock exchange outside of Australia;

(ii) the shares are offered for sale to categories of "professional investors" referred to in section 708(11) of the Corporations Act; or

(iii) the shares are offered to persons who are "sophisticated investors" that meet the criteria set out in sections 708(8) or 708(10) of the Corporations Act; and

(b) under chapter 7 of the Corporations Act where the shares are only offered to persons who are "wholesale clients" within the meaning of section 761g of the Corporations Act.

However, chapter 6d and chapter 7 of the Corporations Act are complex, and if in any doubt, you should confer with your professional advisers regarding the position.

This document is intended to provide general information only and has been prepared by us without taking into account any particular person's objectives, financial situation or needs. Investors should, before acting on this information, consider the appropriateness of this information having regard to their personal objectives, financial situation or needs. Investors should review and consider the contents of this document and obtain financial advice specific to their situation before making any decision to make an application for the shares.

EXPERTS

The financial statements included in our annual report on Form 10-K for the year ended December 31, 2007 and incorporated into this prospectus by reference have been audited by Hein & Associates LLP, an independent registered public accounting firm, to the extent and for the periods set forth in their report, and are incorporated in this prospectus by reference in reliance upon such report given upon the authority of them as experts in auditing and accounting.

LEGAL MATTERS

The validity of the securities offered hereby will be passed on by Holland & Knight LLP, Portland, Oregon. Latham & Watkins LLP, New York, New York, advised the underwriters in connection with this offering of shares of common stock.

INFORMATION INCORPORATED BY REFERENCE

This prospectus is part of a registration statement on Form S-3. The SEC allows this filing 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 this prospectus, 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 14, 2008;

our current reports on Forms 8-K filed on January 11, 2008, February 12, 2008 and February 28, 2008;

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 the offering, shall be deemed to be incorporated by reference into this prospectus and to be a part hereof from the date of

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filing of such documents. Any statement contained in a document incorporated by reference herein shall be deemed to be modified or superseded for purposes of this prospectus 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 herein 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 this prospectus.

You may request a copy of all documents that are incorporated by reference in this prospectus by writing or telephoning us at the following address and number: Ascent Solar Technologies, Inc., Attention: Corporate Secretary, 8120 Shaffer Parkway, Littleton, Colorado 80127, telephone (303) 285-9885. We will provide copies of all documents requested (not including exhibits to those documents, unless the exhibits are specifically incorporated by reference into those documents or this prospectus) without charge.

WHERE YOU CAN FIND MORE INFORMATION

This prospectus is part of a registration statement on Form S-3 filed with the SEC under the Securities Act of 1933, as amended. This prospectus does not contain all the information set forth in the registration statement because certain information has been incorporated into the registration statement by reference in accordance with the rules and regulations of the SEC. Please review the documents incorporated by reference for a more complete description of the matters to which such documents relate.

We are subject to the informational reporting requirements of the Exchange Act. In accordance with the Exchange Act, we file reports, proxy statements, and other information with the SEC. You can inspect and copy these reports, proxy statements, and other information at the Public Reference Room of the SEC, 100 F Street, N.E., Washington, D.C. 20549, at prescribed rates. Please call the SEC at 1-800-SEC-0330 for further information on the operation of the public reference rooms. Our SEC filings are also available on the SEC's web site. The address of this site is *www.sec.gov*.

INDEMNIFICATION

Our Certificate of Incorporation contains provisions that limit the liability of our directors for monetary damages to the fullest extent permitted by Delaware law. Consequently, our directors will not be personally liable to stockholders for monetary damages for any breach of fiduciary duties as directors, except liability for the following:

Any breach of their duty of loyalty to our company or our stockholders.

Acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law.

Unlawful payments of dividends or unlawful stock repurchases or redemptions as provided in Section 174 of the Delaware General Corporation Law.

Any transaction from which the director derived an improper personal benefit.

Our Bylaws provide that we are required to indemnify our directors and officers and may indemnify our employees and other agents to the fullest extent permitted by Delaware law. Our Bylaws also provide that we shall advance expenses incurred by a director or officer before the final disposition of any action or proceeding upon receipt of an undertaking from or on behalf of that director or officer to repay the advance if it is ultimately determined that he or she is not entitled to be indemnified. We have entered and expect to continue to enter into agreements to indemnify our directors, executive officers and other employees as determined by the Board. These agreements provide for indemnification for related expenses including attorneys' fees, judgments, fines and

settlement amounts incurred by any of these individuals in any action or proceeding. We believe that these provisions and indemnification agreements are necessary to attract and retain qualified persons as directors and officers. We also maintain directors' and officers' liability insurance.

The limitation of liability and indemnification provisions in our Certificate of Incorporation and Bylaws may discourage stockholders from bringing a lawsuit against our directors for breach of their fiduciary duty. They may also reduce the likelihood of derivative litigation against our directors and officers, even though an action, if successful, might benefit us and other stockholders. Furthermore, a stockholder's investment may be adversely affected to the extent that we pay the costs of settlement and damage awards against directors and officers as required by these indemnification provisions. At present, there is no pending litigation or proceeding involving any of our directors, officers or employees regarding which indemnification is sought, and we are not aware of any threatened litigation that may result in claims for indemnification.

DISCLOSURE OF COMMISSION POSITION ON INDEMNIFICATION OF SECURITIES ACT LIABILITIES

Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted for directors, officers or persons controlling the Company pursuant to applicable state law, the Company has been informed that, in the opinion of the Commission, such indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable.

Index to Financial Statements

Report of Independent Registered Public Accounting Firm

Financial Statements

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

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

We have audited the balance sheets of Ascent Solar Technologies, Inc. (a Development Stage Company as defined by SFAS No. 7) as of December 31, 2007 and 2006, and the related statements of operations, shareholder's equity and cash flows for the years ended December 31, 2007 and 2006 and for the period from inception (October 18, 2005) through December 31, 2007. 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 audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes 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 financial statements referred to above present fairly, in all material respects, the financial position of Ascent Solar Technologies, Inc. as of December 31, 2007 and 2006, and the results of its operations and its cash flows for the years ended December 31, 2007 and 2006 and for the period from inception (October 18, 2005) through December 31, 2007 in conformity with U.S. generally accepted accounting principles.

***HEIN** & ASSOCIATES LLP*

Denver, Colorado
March 13, 2008

ASCENT SOLAR TECHNOLOGIES, INC.

(A Development Stage Company as Defined by SFAS No. 7)

BALANCE SHEETS

	December 31, 2007	December 31, 2006
ASSETS		
Current Assets:		
Cash and cash equivalents	$ 580,746	$ 786,357
Short term investments	37,120,000	9,885,000
Accounts receivable Contracts	204,351	
Related party receivable		4,440
Other current assets	349,062	115,222
Total current assets	38,254,159	10,791,019
Property & Equipment, net of depreciation and amortization of $115,051 and $12,635 at December 31, 2007 and 2006, respectively	1,651,243	91,008
Other Assets		
Deposits on manufacturing equipment	9,720,309	370,000
Patents, net of amortization of $1,279 and $0 at December 31, 2007 and 2006, respectively.	91,215	37,568
Other non-current assets	100,000	
	9,911,524	407,568
Total Assets	$ 49,816,926	$ 11,289,595
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current Liabilities:		
Accounts payable	$ 257,529	$ 73,043
Related party payable	264,797	183,954
Accrued expenses	652,524	121,636
Total current liabilities	1,174,850	378,633
Deferred Rent	20,021	9,912
Commitments and Contingencies (Notes 6, 12 and 14)		
Stockholders' Equity:		
Preferred Stock, $0.0001 par value, 25,000,000 shares authorized, no shares outstanding		
Common Stock, $0.0001 par value, 75,000,000 shares authorized; 11,435,901 and 5,322,094 shared issued and outstanding at December 31, 2007 and December 31, 2006, respectively	1,144	532
Additional Paid in Capital	60,512,476	16,288,664
Deficit accumulated during the development stage	(11,891,565)	(5,388,146)
Total Stockholders' Equity	48,622,055	10,901,050
Total Liabilities and Stockholders' Equity	$ 49,816,926	$ 11,289,595

See accompanying notes to financial statements.

ASCENT SOLAR TECHNOLOGIES, INC.

(A Development Stage Company as Defined by SFAS No. 7)

STATEMENTS OF OPERATIONS

	For the Years Ended December 31,		For the Period from inception (October 18, 2005) through December 31, 2007
	2007	2006	
Research & Development Revenues	$ 1,002,674	$	$ 1,002,674
Costs and Expenses			
Research & Development	3,975,079	690,964	4,666,043
General and Administrative	4,953,910	2,684,340	8,842,744
Total Costs and Expenses	8,928,989	3,375,304	13,508,787
Loss from Operations	(7,926,315)	(3,375,304)	(12,506,113)
Other Income/(Expense)			
Interest Expense	(424)	(1,080,691)	(1,083,855)
Interest Income	1,423,320	275,083	1,698,403
	1,422,896	(805,608)	614,548
Net Loss	$ (6,503,419)	$ (4,180,912)	$ (11,891,565)
Net Loss Per Share			
(Basic and diluted)	$ (0.70)	$ (1.45)	
Weighted Average Common Shares Outstanding			
(Basic and diluted)	9,237,252	2,881,639	

See accompanying notes to financial statements.

ASCENT SOLAR TECHNOLOGIES, INC.

(Development Stage Company as Defined by SFAS No. 7)

STATEMENTS OF STOCKHOLDERS' EQUITY

For the Period from inception (October 18, 2005) through December 31, 2007

	Common Stock		Preferred Stock		Additional Paid-In	Accumulated	Total Stockholders'
	Shares	Amount	Shares	Amount	Capital	Deficit	Equity
Balance at inception, October 18, 2005							
Proceeds from sale of common stock (11/05 @ $.04 per share)	972,000	$ 97			$ 38,783	$	$ 38,880
Stock Based Compensation:							
Founders Stock					933,120		933,120
Stock Options					26,004		26,004
Net loss						(1,207,234)	(1,207,234)
Balance, December 31, 2005	972,000	$ 97			$ 997,907	$ (1,207,234)	$ (209,230)
Transfer of assets at historical cost (1/06 @ $0.03 per share)	1,028,000	103			31,097		31,200
Proceeds From IPO (7/06 @ $5.50 per unit)	3,000,000	300			16,499,700		16,500,000
IPO Costs					(2,392,071)		(2,392,071)
Stock issued to Bridge Loan Lenders (7/06 @ $2.75 per share)	290,894	29			799,971		800,000
Exercise of Stock Options (9/06 & 12/06 @ $0.10 per share)	31,200	3			3,117		3,120
Stock Based Compensation- Stock options					348,943		348,943
Net loss						(4,180,912)	(4,180,912)
Balance, December 31, 2006	5,322,094	$ 532			$ 16,288,664	$ (5,388,146)	$ 10,901,050
Exercise of Stock Options (1/07-12/07@ $.10) (7/07-12/07@ $4.25) (9/07-12/07@ $2.51-$2.76)	169,963	17			346,417		346,434
Conversion of Class A Public Warrants at $6.60	3,098,382	310			20,449,011		20,449,321
Redemption of Class A Public Warrants at $0.25 per share					(48,128)		(48,128)
Conversion of Class B Public Warrants at $11.00 per share	11,000	1			120,999		121,000
Stock Based Compensation- Stock options					1,734,879		1,734,879
Proceeds from Private Placement:							
Common Stock (3/07 @ $5.77 and 8/07 @ $7.198)	2,534,462	254			15,962,003		15,962,257
Class B Public Warrants (8/07 @ $1.91)					3,754,468		3,754,468
Private Placement Costs					(75,807)		(75,807)

	Common Stock		Preferred Stock		Additional Paid-In	Accumulated	Total Stockholders'
Exercise of Representative's Warrants (9/07-11/07 @ $6.60 per unit)	300,000	30			1,979,970		1,980,000
Net loss						(6,503,419)	(6,503,419)
Balance, December 31, 2007	11,435,901	$ 1,144			$ 60,512,476	$ (11,891,565)	$ 48,622,055

See accompanying notes to financial statements.

ASCENT SOLAR TECHNOLOGIES, INC.

(A Development Stage Company as Defined by SFAS No. 7)

STATEMENTS OF CASH FLOWS

	For the years Ended December 31,		For the Period from inception (October 18, 2005) through December 31, 2007
	2007	2006	
Operating Activities:			
Net loss	$ (6,503,419)	$ (4,180,912)	$ (11,891,565)
Adjustments to reconcile net loss to cash used in operating activities:			
Depreciation and amortization	102,416	12,635	115,051
Stock based compensation	1,734,879	348,943	3,042,946
Charge off of deferred financing costs to interest expense		198,565	198,565
Charge off of bridge loan discount to interest expense		800,000	800,000
Changes in operating assets and liabilities:			
Accounts receivable	(204,351)		(204,351)
Related party receivables	4,440	(4,440)	
Other current assets	(233,840)	(115,222)	(349,062)
Accounts payable	184,486	30,070	257,529
Related party payable	80,843	135,076	264,797
Deferred rent	10,109	9,912	20,021
Accrued expenses	530,887	8,026	652,525
Net cash used in operating activities	(4,293,550)	(2,757,347)	(7,093,544)
Investing Activities:			
Purchases of available-for-sale-securities	(97,116,344)	(46,244,450)	(143,360,794)
Maturities and sales of available for-sale securities	69,881,344	36,359,450	106,240,794
Purchase of equipment	(1,662,650)	(97,399)	(1,760,050)
Deposits on manufacturing equipment	(9,350,309)	(370,000)	(9,720,309)
Patent activity costs	(53,647)	(12,611)	(66,258)
Deposit on Building	(100,000)		(100,000)
Net cash used in investing activities	(38,401,606)	(10,365,010)	(48,766,617)
Financing Activities:			
Proceeds from bridge loan financing		1,600,000	1,600,000
Repayment of bridge loan financing		(1,600,000)	(1,600,000)
Payment of financing costs		(171,401)	(198,565)
Payment of IPO & private placement costs	(75,807)	(2,251,064)	(2,467,880)
Proceeds from note			200,000
Repayment of note		(200,000)	(200,000)
Proceeds from sale of stock, class A & B warrants, representative warrants, & exercise of options	42,613,480	16,503,120	59,155,480
Redemption of class A warrants	(48,128)		(48,128)
Net cash provided by financing activities	42,489,545	13,880,655	56,440,907
Net change in cash and cash equivalents	(205,611)	758,298	580,746
Cash and cash equivalents at beginning of period	786,357	28,059	
Cash and cash equivalents at end of period	$ 580,746	$ 786,357	$ 580,746

			For the Period from inception (October 18, 2005) through December 31, 2007
Supplemental Cash Flow Information:			
Cash paid for interest	$ 424	$ 84,819	$ 85,243
Cash paid for income taxes	$	$	$
Non-Cash Transactions:			
ITN initial contribution of assets for equity	$	$ 31,200	$ 31,200

See accompanying notes to financial statements.

ASCENT SOLAR TECHNOLOGIES, INC.

NOTES TO FINANCIAL STATEMENTS

(A Development Stage Company as Defined by SFAS No. 7)

NOTE 1. ORGANIZATION

Ascent Solar Technologies, Inc. (Ascent or the Company) was incorporated on October 18, 2005 from the separation by ITN Energy, 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 government 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 1,028,000 shares of common stock of Ascent, ITN assigned to Ascent all ITN's CIGS PV technologies and trade secrets and granted to Ascent a perpetual, exclusive, royalty-free worldwide license to use 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 Ascent and also transferred the key personnel working on the contracts to Ascent. Today, ITN still provides Ascent, at cost, a variety of administrative and technical services such as facilities management, equipment maintenance, procurement, information technology and technical support services.

NOTE 2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of Presentation: The Company's activities to date have substantially consisted of raising capital, research and development, and the development of a 1.5 MW production plant. Revenues to date have been generated from the Company's government research and development (R&D) contracts and have not been significant. The Company's planned principal operations to commercialize flexible PV modules has not yet commenced. Accordingly, the Company is considered to be in the development stage, as defined in Statement of Financial Accounting Standards No. 7 (SFAS No. 7), *Accounting and Reporting by Development Stage Enterprises*.

Short Term Investments: The Company's short term investments, which are classified as available-for-sale securities, are invested in high-grade variable rate demand notes, which have a final maturity date of up to 30 years but whose interest rates are reset at varying intervals typically between 1 and 7 days. Unlike auction rate securities, variable rate demand notes can be readily liquidated at any interest rate reset date, either by putting them back to the original issuer or by putting them to a third-party remarketer as generally provided in the original prospectus. To date, the Company has always been able to redeem its holdings of these securities in accordance with their terms, and the Company believes that the risk of non-redemption is minimal. Consequently, these securities are available for use to support the current cash needs of the Company's operations, and in accordance with Accounting Research Bulletin 43, they are classified as short term investments.

Cash Equivalents: The Company considers all 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 that this results in any significant credit risk.

Revenue Recognition: Revenue to date is from government research and development contracts under terms that are cost plus fee or firm fixed price. Revenue from cost plus fee contracts is

ASCENT SOLAR TECHNOLOGIES, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

(A Development Stage Company as Defined by SFAS No. 7)

NOTE 2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)

recognized as costs are incurred on the basis of direct costs plus allowable indirect costs and an allocable portion of the firm 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.

Patents: To the extent the Company obtains or is awarded patents, patent costs will be amortized on a straight line basis over the legal life, or over their estimated useful lives, whichever is shorter. As of December 31, 2007, the Company had $91,215 of patent costs of which $35,812 represent costs incurred for an awarded patent, and the remaining $55,403 represent costs on patents in process. Amortization expense for the years ended December 31, 2007 and 2006 were $1,279 and $0, respectively.

Property and Equipment: Property and equipment are recorded at the original cost to the Company. Assets are being depreciated over estimated useful lives of one to seven years using the straight-line method. Leasehold improvements are depreciated over the shorter of the remainder of the lease's 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.

Risks and uncertainties: The Company's operations are subject to certain risks and uncertainties, including those associated with: the ability to meet obligations; continuing losses; fluctuation in operating results; funding expansions; strategic alliances; financing arrangement terms that may restrict operations; regulatory issues; and competition. Additionally, U.S. government contracts may be terminated prior to completion of full funding by the U.S. government.

Net loss per common share: Statement of Financial Accounting Standards No. 128, "*Earnings Per Share,*" provides for the calculation of "Basic" and "Diluted" earnings per share. Basic earnings per share include no dilution and are 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 of securities that could share in the earnings of the Company, similar to fully diluted earnings per share. Common stock equivalents consisting of Class B Warrants, IPO Warrants (representative warrants), and stock options outstanding as of December 31, 2007 of approximately 10 million shares, have been omitted from loss per share because they are anti-dilutive. Basic and diluted loss per share was the same in each of the years ended December 31, 2007 and 2006.

Research and development costs: Research and development costs are expensed as incurred.

Incomes Taxes: In July 2006, the FASB issued FASB Interpretation (FIN) No. 48, *Accounting for Uncertainty in Income Taxes*. The Company adopted the provisions of FIN No. 48 on January 1, 2007. 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

ASCENT SOLAR TECHNOLOGIES, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

(A Development Stage Company as Defined by SFAS No. 7)

NOTE 2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)

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 of the date of enactment.

In July 2006, the Financial Accounting Standards Board issued FIN 48, which clarifies the accounting and disclosure for uncertainty in tax positions, as defined. FIN 48 seeks to reduce the diversity in practice associated with certain aspects of the recognition and measurement related to accounting for income taxes. The Company is subject to the provisions of FIN 48 as of January 1, 2007, and 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 in these jurisdictions. The Company has identified its federal tax return and its Colorado tax return as "major" tax jurisdictions, as defined. The periods subject to examination for the Company's federal and state tax returns are tax years 2005 through 2006. The Company believes that 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 flow. Therefore, no reserves for uncertain income tax positions have been recorded pursuant to FIN 48. In addition, the Company did not record a cumulative effect adjustment related to the adoption of FIN 48.

Stock-based Compensation: The Company accounts for share-based payments under the provisions of Statement of Financial Accounting Standards No. 123 (revised 2004), "*Share-Based Payment,*" (SFAS 123(R)) which requires the measurement and recognition of compensation expense for all share-based payment awards made to employees, officers and directors, and consultants, including employee stock options based on estimated fair values. SFAS 123(R) requires companies to estimate the fair value of share-based payment awards on the date of grant using an option-pricing model. 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. Stock-based compensation is based on awards ultimately expected to vest and is reduced for estimated forfeitures. SFAS 123(R) requires forfeitures to be estimated at the time of grant and revised, if 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 under SFAS 123(R), the Company used the Black-Scholes option-pricing model (Black-Scholes Model). 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 guidance in SFAS 123(R) is relatively new, and best practices are not well established. The application of these principles 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 application of SFAS 123(R) in future

ASCENT SOLAR TECHNOLOGIES, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

(A Development Stage Company as Defined by SFAS No. 7)

NOTE 2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)

periods, or if the Company decides to use a different valuation model, the compensation expense that the Company records in the future under SFAS 123(R) may differ significantly from what it has 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 2006 financial statements to conform to the 2007 presentation. Such reclassifications had no effect on net loss.

Use of estimates: The preparation of financial statements in conformity with generally accepted accounting principles 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 September 2006, the FASB issued FASB Statement No. 157, Fair Value Measurements (SFAS No. 157). SFAS No. 157 provides enhanced guidance for using fair value to measure assets and liabilities. SFAS No. 157 clarifies the principle that fair value should be based on the assumptions market participants would use when pricing the assets or liabilities and establishes a hierarchy that prioritizes the information used to develop those assumptions. SFAS No. 157 applies whenever other standards require (or permit) assets or liabilities to be measured at fair value. SFAS No. 157 is effective for financial statements issued for fiscal years beginning after November 15, 2007. Therefore, the Company is required to adopt SFAS 157 by the first quarter of 2008. The adoption of SFAS No. 157 is not expected to have a material impact on the Company's financial position, results of operations or cash flows.

In February 2007, the FASB issued FASB Statement 159, The Fair Value Option for Financial Assets and Financial Liabilities (SFAS 159). SFAS 159 allows the Company to choose to measure many financial assets and financial liabilities at fair value. Unrealized gains and losses on items for which the fair value option has been elected are reported in earnings. SFAS 159 is effective for fiscal years beginning after November 15, 2007. Therefore, the Company is required to adopt SFAS 159 by the first quarter of 2008. The adoption of SFAS No. 159 is not expected to have a material impact on the Company's financial position, results of operations or cash flows.

In December 2007, the Financial Accounting Standards Board (FASB) issued Statement of Financial Accounting Standards No. 141 (revised 2007), *Business Combinations* (SFAS No. 141R). SFAS No. 141(R), among other things, establishes principles and requirements for how the acquirer in a business combination (i) recognizes and measures in its financial statements the identifiable assets acquired, the liabilities assumed, and any noncontrolling interest in the acquired business, (ii) recognizes and measures the goodwill acquired in the business combination or a gain from a bargain purchase, and (iii) determines what information to disclose to enable users of the financial statements to evaluate the nature and financial effects of the business combination. SFAS No. 141R is effective for fiscal years beginning on or after December 15, 2008, with early adoption prohibited. The Company is required to adopt SFAS No. 141(R) for all business combinations for which the acquisition date is on or after January 1, 2009. Earlier adoption is prohibited. This standard will change the Company's accounting treatment for business combinations on a prospective basis.

ASCENT SOLAR TECHNOLOGIES, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

(A Development Stage Company as Defined by SFAS No. 7)

NOTE 2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)

In December 2007, the FASB issued Statement of Financial Accounting Standards No. 160, *Noncontrolling Interests in Consolidated Financial Statements, an Amendment of ARB No. 51* (SFAS No. 160). SFAS No. 160 establishes accounting and reporting standards for noncontrolling interests in a subsidiary and for the deconsolidation of a subsidiary. Minority interests will be recharacterized as noncontrolling interests and classified as a component of equity. It also establishes a single method of accounting for changes in a parent's ownership interest in a subsidiary and requires expanded disclosures. This statement is effective for fiscal years beginning on or after December 15, 2008, with early adoption prohibited. The Company does not expect the adoption of this Statement will have a material impact on its financial position or results of operations.

NOTE 3. LIQUIDITY AND CONTINUED OPERATIONS

As discussed in Note 1, the Company is in the development stage and is currently incurring significant losses from operations. As of December 31, 2007, the Company had $37.7 million cash and investments of which approximately $1.1 million of this cash will be used for final progress payments to its equipment suppliers on its 1.5 MW line and another $2.3 million is committed for a manufacturing research and development tool in conjunction with planned expansion to approximately 30 MW of rated capacity.

The Company expects to commence limited commercial production on its 1.5 MW production line in the second quarter of 2008. The Company expects its current cash balance to be sufficient to cover its operational expenditures through 2009 based on currently known factors, although it expects that it will need to raise capital in 2008 in order to purchase the production tools necessary to achieve approximately 30 MW of rated capacity by the end of 2009.

NOTE 4. ACCOUNTS RECEIVABLE CONTRACTS

Effective January 1, 2007, the Company completed the novation, or transfer, of approximately $3.5 million in government funded research and development contracts ("R&D Contracts") from ITN. The various contracts are being performed for U.S. government customers that include the Air Force Research Laboratory and the National Aeronautics and Space Administration. In addition to approximately $1.6 million in future revenues to be provided under the transferred contracts, the key scientists, engineers, and process technicians responsible for performing under the transferred contracts were also transferred from ITN to become full-time Ascent employees. In 2007, R&D Contracts of approximately $1.7 million in potential revenue were awarded directly to the Company.

Accounts receivable consists mainly of billed and unbilled amounts under these R&D Contracts. Management deems all accounts receivable to be collectible.

The components of accounts receivable as of December 31, 2007 are:

	December 31, 2007
Billed receivables	$ 176,168
Unbilled receivables	28,183
Total	$ 204,351

ASCENT SOLAR TECHNOLOGIES, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

(A Development Stage Company as Defined by SFAS No. 7)

NOTE 4. ACCOUNTS RECEIVABLE CONTRACTS (Continued)

Unbilled receivables represent costs incurred but not yet billed, including retainage amounts by the Government on contracts that have not been closed out at the end of the year.

Provisional Indirect Cost Rates In 2007, the Company billed the government under cost-based R&D 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 will result in the negotiation and determination of the final indirect cost rates. The Company has not been audited and has not received final rate determinations for the year ended December 31, 2007. The final rates, if different from the actual, may create an additional receivable or liability.

In the opinion of management, re-determination of any cost-based contracts for 2007 will not have a material effect on the Company's financial position or results of operation.

Contract Status The Company has authorized but not completed contracts on which work is in process at December 31, 2007 as follows:

Total Contract price of initial contract awards, including exercised options and approved change orders (modifications)	$	5,228,023
Completed to date(1)		(2,828,453)
Authorized backlog		2,399,570

(1) Includes work performed by ITN prior to January 1, 2007.

NOTE 5. PROPERTY AND EQUIPMENT

Property and equipment consisted of the following at December 31, 2007 and 2006:

	December 31, 2007	December 31, 2006
Computer Equipment	$ 147,943	$ 47,771
Furniture and Fixtures	2,027	2,716
R&D Equipment	150,993	53,156
Shop/Facility Equipment	12,253	
Leasehold Improvements	724,907	
Manufacturing Equipment	728,171	
	1,766,294	103,643
Less: Accumulated depreciation and amortization	(115,051)	(12,635)
Property and equipment, net	$ 1,651,243	$ 91,008

Depreciation and amortization expense for the years ended December 31, 2007 and 2006 was $102,416 and $12,635, respectively.

ASCENT SOLAR TECHNOLOGIES, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

(A Development Stage Company as Defined by SFAS No. 7)

NOTE 6. DEPOSITS ON MANUFACTURING EQUIPMENT

As of December 31, 2007, the Company had entered into approximately $12.0 million of manufacturing equipment purchase agreements and a construction contractor agreement (1.5 MW Purchase Agreements) to complete its 1.5 MW production line and to make facility modifications. Included in the $12.0 million Purchase Agreements is a purchase order to ITN for $1.5 million to develop the CIGS deposition and source box that is located inside the CIGS vacuum chamber. As of December 31, 2007 and 2006, the Company had made deposits on the 1.5 MW Purchase Agreements of approximately $9.7 million and $370,000, respectively, which have been reflected on the Balance Sheet as Deposits on manufacturing equipment in Other Assets. As of December 31, 2007, $1.2 million has been capitalized in Property & Equipment on the Balance Sheet and $1.1 million remains as commitments under the 1.5 MW Purchase Agreements. Additional purchase agreements of approximately $2.3 million have been entered into in 2007 for a manufacturing research and development tool for the Company's planned expansion to approximately 30 MW of rated capacity. As of December 31, 2007, the Company had made down payments on these additional purchase agreements of approximately $400,000, which have also been reflected on the Balance Sheet as Deposits on manufacturing equipment in Other Assets. The remaining commitments as of December 31, 2007 on these additional purchase agreements total approximately $1.9 million.

A majority of the 1.5 MW Purchase Agreements terms is based on set milestone deliverables, such as the Company's acceptance of design requirements and successful installation and commissioning of the equipment. Approximately $3.7 million of the 1.5 MW Purchase Agreements are denominated in euros and pounds sterling. The Company records a liability equal to the payment milestone at the time each of these milestones is reached and records a gain or loss resulting from the foreign currency translations (transactions denominated in a currency other than the functional currency of the Company) based on the currency fluctuation from the date the milestone is reached to the date the actual milestone payment is made. For the years ended December 31, 2007 and 2006 there were no gains or losses on foreign currency recorded as the currency fluctuation from the dates the milestones were reached and the dates the actual milestone payments were made were immaterial.

Delivery and installation of the 1.5 MW manufacturing equipment began in the fourth quarter 2007, and the Company anticipates completion by the end of March 2008.

NOTE 7. DEBT

In January 2006, the Company completed a $1.6 million bridge loan (Bridge Financing) from lenders (Bridge Noteholders) to help meet the Company's working capital needs. The loans (Bridge Loans) accrued interest at an annual rate of 10% and were due and payable on the earlier of January 2007 or the completion of Ascent's public offering of equity securities with gross proceeds of at least $5,000,000 (Qualified Public Offering). In July 2006, with the proceeds from a Qualified Public Offering (*i.e.,* the Company's initial public offering or IPO), the Company repaid the Bridge Loans including accrued interest.

In connection with the Bridge Loans, the Company issued rights (Bridge Rights) to the Bridge Noteholders. One Bridge Right was issued for every $25,000 loaned. In July 2006, upon completion of the IPO, the holders of Bridge Rights received restricted units. The holder of each Bridge Right received that number of units equal to $25,000 divided by the IPO price of the units of $5.50 for a total of 290,894 units. The units are identical to those offered in Ascent's IPO and consisted of one share of

ASCENT SOLAR TECHNOLOGIES, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

(A Development Stage Company as Defined by SFAS No. 7)

NOTE 7. DEBT (Continued)

common stock, one redeemable Class A public warrant and two non-redeemable Class B warrants. In September 2006, the SEC declared effective the Company's Registration Statement on Form SB-2 (Reg. No. 333-137008) for the shares and warrants underlying the 290,894 units issued in connection with the Bridge Rights. The Registration Statement on Form SB-2 subsequently was converted to a Registration Statement on Form S-3.

Paulson Investment Company, Inc. acted as the placement agent for the Bridge Financing. The Company paid Paulson Investment Company, Inc. a commission equal to 10% of the gross proceeds from the Bridge Financing, plus reasonable out-of-pocket expenses. The Bridge Loans and the Bridge Rights were allocated for accounting purposes based on the relative fair values of the Bridge Loans without the Bridge Rights and the Bridge Rights themselves at the time of issuance. The actual value of the Bridge Loans and the Bridge Rights was computed at $1,600,000 each for a total value of $3,200,000. Since they were each of equal value, the $1,600,000 of proceeds was allocated 50% to the Bridge Loans and 50% to the Bridge Rights (*i.e.,* $800,000 each). The Bridge Rights of $800,000 were accounted for as paid-in capital.

The discount for the commission ($160,000) and the Bridge Rights ($800,000) were amortized into interest expense over the life of the loans. In July 2006 with the repayment of the Bridge Loans, the remaining unamortized balance of the discount for commission and Bridge Rights was recognized as interest expense in the Statements of Operations. For the year ended December 31, 2006 and the period from inception (October 18, 2005) through December 31, 2007, the Company recorded $960,000 in interest expense related to these discounts.

NOTE 8. STOCKHOLDERS' EQUITY

The Company authorized capital stock consists of 75,000,000 shares of common stock, $0.0001 par value, and 25,000,000 shares of preferred stock, $0.0001 par value. In November 2005, the Company issued 972,000 shares of common stock at a price of $0.04 per share. The Company has recorded for financial statement purposes the 972,000 shares at a fair value of $1.00 per share. The Statements of Stockholders' Equity reflect compensation expense of $933,120 related to the recording of this stock transaction. In January 2006, in consideration of certain asset transfers, licenses and service agreements (see Note 1), the Company issued 1,028,000 shares of common stock to ITN Energy Systems, Inc.

Preferred stock, $0.0001 par value per share, may be issued in classes or series. Designations, powers, preferences, rights, qualifications, limitations and restrictions are determined by the Company's Board of Directors.

Initial Public Offering: On July 10, 2006, the SEC declared effective the Company's Registration Statement on Form SB-2 (Reg. No. 333-131216), and the Company completed its IPO of 3,000,000 units on July 14, 2006. Each unit consisted of one share of common stock, one redeemable Class A warrant and two non-redeemable Class B warrants. The managing underwriter of the IPO was Paulson Investment Company, Inc. The IPO price was $5.50 per unit. The gross proceeds of the offering were $16,500,000. Ascent's net proceeds from the offering, after deducting the underwriter's discount of $1,097,250 and other fees and expenses, aggregated approximately $14,000,000.

ASCENT SOLAR TECHNOLOGIES, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

(A Development Stage Company as Defined by SFAS No. 7)

NOTE 8. STOCKHOLDERS' EQUITY (Continued)

The common stock and Class A and Class B warrants traded only as a unit through August 9, 2006, after which the common stock, the Class A warrants and the Class B warrants began trading separately.

Class A warrants. On May 24, 2007, the Company publicly announced that it intended to redeem its outstanding Class A warrants. The Class A warrants became eligible for redemption by the Company at $0.25 per warrant on April 16, 2007, when the last reported sale price of the Company's common stock had equaled or exceeded $9.35 for five consecutive trading days. There were 3,290,894 Class A warrants issued in connection with the Company's initial public offering, including the warrants issued to the Bridge Noteholders. The Class A warrants were exercisable at a price of $6.60 per share.

The exercise period ended June 22, 2007. During the exercise period, 3,098,382 Class A warrants (94.1% of The total outstanding) were exercised for an equal number of shares of common stock, and the Company received $20,449,321 in proceeds from the warrant exercises. At the end of the exercise period, 192,512 Class A warrants remained outstanding. The Company has set aside funds with its warrant transfer agent to redeem the outstanding warrants for $0.25 per warrant, or a total cost of $48,128. As of December 31, 2007, 9,090 Class A warrants remain unredeemed.

Class B warrants. The Class B warrants included in the units became exercisable on August 10, 2006. The exercise price of a Class B public warrant is $11.00. The Class B warrants expire on July 10, 2011. The Company does not have the right to redeem the Class B warrants. During the year ended December 31, 2007, 11,000 Class B warrants were exercised resulting in proceeds to the Company of $121,000. As of December 31, 2007, 8,836,478 Class B warrants were outstanding.

IPO warrants. Warrants to purchase 300,000 units at $6.60 were issued to underwriters of the Company's initial public offering in July 2006 (representative's warrants). A unit consists of one share of common stock, one Class A redeemable warrant and two Class B non-redeemable warrants. The warrants expire on July 10, 2011. Upon exercise of the representative's warrants, holders will be forced to choose whether to exercise the underlying Class A warrants or hold them for redemption. As noted above, on June 25, 2007, any Class A warrants then outstanding expired and became redeemable.

Representative's warrants to purchase 150,000 units have been exercised as of December 31, 2007, as have the 150,000 underlying Class A warrants resulting in an issuance of 300,000 shares of common stock and 600,000 Class B warrants for total proceeds to the Company of $1.98 million. To the extent that holders of representative's warrants are entitled to receive Class A warrants upon exercise of the representative's warrants, those warrants will be immediately subject to call for redemption at $0.25 per warrant. The holders will then have to decide whether to exercise their Class A warrants or hold them for redemption. As of December 31, 2007, 150,000 representative's warrants remained unexercised.

Private Placement of Securities: The Company completed a private placement of securities with Norsk Hydro Produksjon AS (Hydro) in March 2007. Hydro is a subsidiary of Norsk Hydro ASA. Hydro purchased 1,600,000 shares of the Company's common stock (representing 23% of the Company's outstanding common stock post transaction) for an aggregate purchase price of $9,236,000. The Company recorded $75,807 of costs associated with the private placement as a reduction to Additional Paid in Capital on the Company's Balance Sheet as of December 31, 2007. In connection with the private placement, Hydro was granted options to purchase additional shares and warrants.

ASCENT SOLAR TECHNOLOGIES, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

(A Development Stage Company as Defined by SFAS No. 7)

NOTE 8. STOCKHOLDERS' EQUITY (Continued)

In August 2007, Hydro acquired an additional 934,462 shares of the Company's common stock and 1,965,690 Class B warrants through the exercise of an option previously granted to Hydro and approved by Ascent's stockholders in June 2007. Gross proceeds to the Company were $10.48 million, and reflected per share and per warrant purchase prices were equal to the average of the closing bids of each security, as reported by Nasdaq, for the five consecutive trading days preceding exercise.

After acquiring these additional shares, Hydro again held 23% of the total outstanding common shares, after its holdings were diluted as the result of the redemption of Class A warrants and now owns 23% of total outstanding Class B warrants. Pursuant to another option that was approved by Ascent's stockholders, beginning December 13, 2007, Hydro has the opportunity to purchase additional shares and Class B warrants so that it will hold up to 35% of each class of security.

As of December 31, 2007, the Company had 11,435,901 shares of common stock and no shares of preferred stock outstanding.

NOTE 9. STOCK BASED COMPENSATION

Stock Option Plan: The Company's 2005 Stock Option Plan, as amended (Option Plan) provides for the grant of incentive or non-statutory stock options to the Company's employees, directors and consultants. A total of 1,000,000 shares of common stock is reserved for issuance under the Option Plan. The Board of Directors and the Company's stockholders approved the Option Plan and its amendments.

The Option Plan is administered by the Compensation Committee of the Board of Directors, which determines the terms of the options, including the exercise price (equal to or greater than fair market value), expiration date, vesting schedule and number of shares. The term of any incentive stock option granted under the Option Plan may not exceed ten years, or five 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.

Stock Based Compensation: The Company accounts for share-based payments under the provisions of Statement of Financial Accounting Standards No. 123 (revised 2004), "*Share-Based Payment,*" ("SFAS 123(R)") which requires the measurement and recognition of compensation expense for all share-based payment awards made to employees, officers and directors and consultants, including employee stock options based on estimated fair values. Stock-based compensation expense recognized in the Statements of Operations for the year ended December 31, 2007 and 2006 and for the period from inception (October 18, 2005) through December 31, 2007 is based on awards ultimately expected to vest and it has been reduced for estimated forfeitures.

ASCENT SOLAR TECHNOLOGIES, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

(A Development Stage Company as Defined by SFAS No. 7)

NOTE 9. STOCK BASED COMPENSATION (Continued)

The weighted average estimated fair value of employee stock options granted for the years ended December 31, 2007 and 2006 were $9.90 and $2.07 per share, respectively. Fair value was calculated using the Black-Scholes Model with the following weighted average assumptions:

	For the Years Ended December 31,	
	2007	2006
Expected volatility	83.7%	90.2%
Risk free interest rate	3.3 - 3.6%	4.62%
Expected dividends		
Expected life (in years)	6.41	6.1

The Company based its estimate of expected volatility on disclosures made by peers. The expected option term was calculated using the "simplified" method permitted by Staff Accounting Bulletin (SAB) 107. Forfeitures were estimated based on historical employee retention experience among staff of similar position to those granted options in the plan. Stock-based compensation expense recognized for the years ended December 31, 2007 and 2006 were as follows:

	For the Years Ended December 31,	
	2007	2006
Officers, directors & employees	$ 461,432	$ 159,098
Outside providers	1,273,447	189,845
	$ 1,734,879	$ 348,943

Stock-based compensation expense is calculated on a straight-line basis over the vesting periods of the related options. In future periods, the compensation expense that the Company records under SFAS 123(R) may differ significantly from what the Company recorded in the current period, as the Company builds company-specific performance history.

As of December 31, 2007, the Company had approximately $3,414,000 of total compensation cost ($1,723,000 to officers, directors and employees, and $1,691,000 to outside providers) related to non-vested awards not yet recognized and expects to recognize these costs over a weighted average period of approximately 3 years.

ASCENT SOLAR TECHNOLOGIES, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

(A Development Stage Company as Defined by SFAS No. 7)

NOTE 9. STOCK BASED COMPENSATION (Continued)

The following schedule summarizes activity in its stock-option plan (shares in thousands):

	Stock Option Shares	Stock Options Weighted Average Exercise Price	Weighted Average Remaining Contractual Life in Years	Aggregate Intrinsic Value
OUTSTANDING AT OCTOBER 18, 2005		$		
Granted	408	0.10		
OUTSTANDING AT DECEMBER 31,2005	408	$ 0.10		
Granted	336	3.64		
Exercised	(31)	(.10)		
Canceled	(75)	(1.26)		
OUTSTANDING AT DECEMBER 31, 2006	638	$ 1.83		
Granted	232	11.52		
Exercised	(170)	(2.04)		
Canceled	(13)	(1.03)		
OUTSTANDING AT DECEMBER 31, 2007	687	$ 5.07	4.82	$ 13,595,562
EXERCISABLE AT DECEMBER 31, 2007	237	$ 2.10	2.40	$ 5,403,718

The total intrinsic value, or the difference between the exercise price and the market price on the date of exercise of all options exercised during the years ended December 31, 2007 and 2006 was $1,882,882 and $56,180, respectively. As of December 31, 2007, approximately 400,000 shares were expected to vest in the future at a weighted average exercise price of $2.10. As of December 31, 2007, approximately 112,000 shares remained available for future grants under the Option Plan.

The following table contains details of the Company's outstanding stock options as of December 31, 2007:

	Options Outstanding		Options Exercisable	
Range of Exercise Prices	**Number Outstanding**	**Weighted Average Exercise Price**	**Number Exercisable**	**Weighted Average Exercise Price**
	(In Thousands)		**(In Thousands)**	
$0.10	243	$ 0.10	137	$ 0.10
$2.51 - $4.25	286	$ 3.46	80	$ 3.98
$7.90 - $8.82	33	$ 8.30	20	$ 8.33
$17.15 - $18.35	125	$ 17.55	0	$

NOTE 10: INCOME TAXES

The Company records 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 carry-forwards.

ASCENT SOLAR TECHNOLOGIES, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

(A Development Stage Company as Defined by SFAS No. 7)

NOTE 10: INCOME TAXES (Continued)

At December 31, 2007, the Company has approximately $4,100,000 in net operating loss carry-forwards that will expire beginning in 2025. Approximately $1,500,000 of the net operating loss carryover is not included in the calculation of the deferred tax asset since it is related to excess tax deductions from the exercise of stock options. 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. As a result of the initial public offering, and the 2007 private placement significant ownership changes may have occurred.

Deferred income taxes represent an estimate of the income tax that will be due in future periods from the cumulative temporary differences recognized for financial reporting purposes from that recognized for income tax reporting purposes. At December 31, 2007 and 2006, the components of these temporary differences and the deferred tax asset were as follows:

Deferred Tax Asset	2007	2006
Non-current:		
Stock Based Compensation-Stock Options	$ 550,000	$ 64,000
Tax effect of NOL carry forward	1,000,000	131,000
Depreciation	25,000	
Start-up costs	890,000	1,025,000
Capitalized manufacturing costs	1,285,000	
Net deferred tax asset	3,750,000	1,220,000
Less valuation allowance	(3,750,000)	(1,220,000)
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. Based upon the level of historical losses and projections of future taxable income over the periods in which the deferred tax assets are deductible, a full valuation allowance has been provided due to the uncertainty surrounding the timing and the amount of future revenues. The Company's deferred tax valuation allowance of $3,750,000 reflected above is an increase of $2,530,000 from the valuation allowance reflected as of December 31, 2006 of $1,220,000. The Company's effective tax rate differs from the statutory rate due to the following (expressed as a percentage of pre-tax income):

	2007	2006
Federal statutory rate	(35)%	(35)%
State statutory rate	(3)%	(3)%
Permanent tax differences	2%	8%
Other	1%	1%
Increase in valuation allowance	35%	29%
	0%	0%

ASCENT SOLAR TECHNOLOGIES, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

(A Development Stage Company as Defined by SFAS No. 7)

NOTE 11. RELATED PARTY TRANSACTIONS

Included in General and Administrative Expenses for the years ended December 31, 2007 and 2006 are $937,212, and $1,170,226, respectively, of costs to ITN for facility sublease costs and administrative support expenses. Included in Research and Development Expenses for the years ended December 31, 2007 and 2006 are $908,005, and $302,744, respectively, of costs to ITN for research and development and manufacturing activity. Related party payable of $264,797 as of December 31, 2007 represents costs remaining to be paid to ITN for these expenditures and amounts payable to officers and directors for Board of Directors fees and reimbursement of travel expenditures.

Included in Research and Development Revenues on the Statement of Operations for the year ended December 31, 2007 is $27,519 for labor charged by the Company to ITN for research and development activities.

Included in Property and Equipment and Deposits on Equipment as of December 31, 2007 is $1,221,261 of costs to ITN for the construction of manufacturing and research and development equipment

NOTE 12. COMMITMENTS

Sublease Agreement: On November 1, 2005, the Company entered into a sublease agreement with ITN, a greater than five percent stockholder of the Company, to lease office space in Littleton, Colorado. In 2005 and 2006, two Board members of Ascent were partial owners of the company that leased this office space to ITN. As of January 1, 2007, they no longer have an investment in the building the Company is subleasing from ITN. Future minimum payments due under the sublease as of January 1, 2008 are as follows:

Year ending December 31:	
2008	$ 227,896
2009	$ 227,896
2010	$ 113,948

The Company is also responsible for payment of pass-through expenses such as property taxes, insurance, water and utilities. Rent expense for the years ended December 31, 2007 and 2006 was $217,214 and $150,245, respectively.

Patent License Agreements: In 2006, the Company entered into two non-exclusive patent license agreements. In consideration for the right to license certain inventions, the Company is required to pay annual royalty payments based on net sales of products manufactured using the licensed technology. If there are no net sales of products manufactured using the licensed technology, then a minimum royalty payment is required. The Company has made payments for the annual minimum royalties due associated with these patent license agreements.

NOTE 13. 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 that they are at least 21 years of age. The participants may elect through salary

ASCENT SOLAR TECHNOLOGIES, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)

(A Development Stage Company as Defined by SFAS No. 7)

NOTE 13. RETIREMENT PLAN (Continued)

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.

NOTE 14. SUBSEQUENT EVENTS

Acquisition of Manufacturing Facility: On February 8, 2008, the Company acquired an approximately 120,000 square foot 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 with the Colorado Housing and Finance Authority (CHFA), which provide the Company borrowing availability of up to $7.5 million for the building and building improvements. The Company paid approximately $1.3 million in cash and was advanced approximately $4.2 million from CHFA to fund the initial acquisition of the property. The construction loan terms are to pay interest at 6.6% on only the drawn principal amount until January 1, 2009, at which time the construction loan will be refinanced by a permanent loan. The permanent loan will have an interest rate of 6.6% and the principal will be amortized over a period of approximately 19 years and 2 months consistent with a maturity date 20 years after the incurrence of the construction loan on February 8, 2008. The terms of the permanent loan are specified in a CHFA Construction and Permanent Loan Commitment dated January 16, 2008. In December 2007 a deposit of $100,000 was paid for the facility and is reflected in Other non-current assets on the Balance Sheet as of December 31, 2007.

Shares

Ascent Solar Technologies, Inc.

Common Stock

PROSPECTUS
, 2008

Bear, Stearns & Co. Inc.

Cowen and Company **Jefferies & Company**

Merriman Curhan Ford & Co.

Through and including , 2008 (25 days after the date of this prospectus), all dealers that effect transactions in our common stock, whether or not participating in this offering, may be required to deliver a prospectus. This is in addition to the dealers' obligation to deliver a prospectus when acting as underwriters and with respect to their unsold allotments or subscriptions.

PART II
INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution.

The estimated expenses of the offering, all of which are to be borne by the Registrant, are as follows:

SEC Registration Fee	$	3,144
FINRA Filing Fee*	$	8,500
Nasdaq Additional Listing Fee*	$	5,000
Printing and Engraving*	$	70,000
Accounting Fees and Expenses*	$	20,000
Legal Fees and Expenses*	$	350,000
Transfer Agent Fees*	$	10,000
Miscellaneous*	$	83,356
Total*	$	550,000

* Estimated

Item 15. Indemnification of Directors and Officers.

Under Delaware law, a corporation may indemnify any person who was or is a party or is threatened to be made a party to an action (other than an action by or in the right of the corporation) by reason of his service as a director or officer of the corporation, or his service, at the corporation's request, as a director, officer, employee or agent of another corporation or other enterprise, against expenses (including attorneys' fees) that are actually and reasonably incurred by him ("Expenses"), and judgments, fines and amounts paid in settlement that are actually and reasonably incurred by him, in connection with the defense or settlement of such action, provided that he acted in good faith and in a manner he reasonably believed to be in or not opposed to the corporation's best interests, and, with respect to any criminal action or proceeding, had no reasonable cause to believe that his conduct was unlawful. Although Delaware law permits a corporation to indemnify any person referred to above against Expenses in connection with the defense or settlement of an action by or in the right of the corporation, provided that he acted in good faith and in a manner he reasonably believed to be in or not opposed to the corporation's best interests, if such person has been judged liable to the corporation, indemnification is only permitted to the extent that the Court of Chancery (or the court in which the action was brought) determines that, despite the adjudication of liability, such person is entitled to indemnity for such Expenses as the court deems proper. The General Corporation Law of the State of Delaware also provides for mandatory indemnification of any director, officer, employee or agent against Expenses to the extent such person has been successful in any proceeding covered by the statute. In addition, the General Corporation Law of the State of Delaware provides the general authorization of advancement of a director's or officer's litigation expenses in lieu of requiring the authorization of such advancement by the board of directors in specific cases, and that indemnification and advancement of expenses provided by the statute shall not be deemed exclusive of any other rights to which those seeking indemnification or advancement of expenses may be entitled under any bylaw, agreement or otherwise.

The Bylaws of the Company provide for the broad indemnification by the directors and officers of the Company and for advancement of litigation expenses to the fullest extent permitted by current Delaware law. The Company also has entered into indemnification contracts with its directors and officers.

The Company maintains a policy of directors and officers liability insurance which reimburses the Company for expenses which it may incur in connection with the foregoing indemnity provisions and which may provide direct indemnification to directors and officers where the Company is unable to do so.

Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of Registrant pursuant to the above, the Registrant has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable.

Item 16. Exhibits.

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1.1	Form of Underwriting Agreement
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3.2	Amended and Restated Bylaws (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed April 17, 2007)
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5.1	Opinion of Holland & Knight LLP*
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23.1	Consent of Hein & Associates LLP
23.2	Consent of Holland & Knight LLP (included in Exhibit 5.1)*

* To be filed by amendment.

Item 17. Undertakings.

The undersigned registrant hereby undertakes:

(1) That, if the registrant is relying on Rule 430A, the registrant will:

(i) For determining any liability under the Securities Act, treat the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the registrant under Rule 424(b)(1), or (4), or 497(h) under the Securities Act as part of this registration statement as of the time the Commission declared it effective; and

(ii) For determining any liability under the Securities Act, treat each post-effective amendment that contains a form of prospectus as a new registration statement for the securities offered in the registration statement, and that offering of the securities at that time as the initial bona fide offering of those securities.

(2) That, for the purpose of determining liability under the Securities Act to any purchaser:

(i) If the registrant is relying on Rule 430B:

(a) Each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and

(b) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by section 10(a) of the Securities Act shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof. Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date; or

(ii) If the registrant is subject to Rule 430C, each prospectus filed pursuant to Rule 424(b) as part of a registration statement relating to an offering, other than registration statements relying on Rule 430B or other than prospectuses filed in reliance on Rule 430A, shall be deemed to be part of and included in the registration statement as of the date it is first used after effectiveness. Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such first use, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such date of first use;

(3) If the registrant requests acceleration of the effective date of the registration statement under Rule 461, then in the event that a claim for indemnification against such liabilities (other than the payment by the small business issuer of expenses incurred or paid by a director, officer or controlling person of the small business issuer in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the registrant pursuant to the provisions described under Item 15 above, or otherwise, the registrant has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities, other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding, is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in Littleton, Colorado on March 14, 2008.

Ascent Solar Technologies, Inc.

By: /s/ MATTHEW FOSTER

Matthew Foster, *President and Chief Executive Officer*

POWER OF ATTORNEY

We, the undersigned directors and officers of Ascent Solar Technologies, Inc., do hereby constitute and appoint Matthew Foster, Janet Casteel and Mohan Misra, or any of them, our true and lawful attorneys and agents, to do any and all acts and things in our name and behalf in our capacities as directors and officers and to execute any and all instruments for us and in our names in the capacities indicated below, which said attorneys and agents, or either of them, may deem necessary or advisable to enable said corporation to comply with the Securities Act of 1933, as amended, and any rules, regulations, and requirements of the Securities and Exchange Commission, in connection with this registration statement, including specifically, but without limitation, power and authority to sign for us or any of us in our names and in the capacities indicated below, any and all amendments (including post-effective amendments) to this registration statement, or any related registration statement that is to be effective upon filing pursuant to Rule 462(b) under the Securities Act of 1933, as amended; and we do hereby ratify and confirm all that the said attorneys and agents, or either of them, shall do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act, this registration statement has been signed below by the following persons in the capacities and on the dates indicated.

Signature	Title	Date
/s/ MATTHEW FOSTER Matthew Foster	President and Chief Executive Officer (Principal Executive Officer)	March 14, 2008
/s/ JANET CASTEEL Janet Casteel	Chief Accounting Officer and Treasurer (Principal Accounting and Financial Officer)	March 14, 2008
/s/ MOHAN S. MISRA Mohan S. Misra	Chairman of the Board	March 13, 2008
/s/ STANLEY A. GALLERY Stanley A. Gallery	Director	March 13, 2008

/s/ EINAR GLOMNES Einar Glomnes	Director	March 13, 2008
/s/ AMIT KUMAR Amit Kumar	Director	March 13, 2008
/s/ JOEL S. PORTER Joel S. Porter	Director	March 13, 2008
/s/ T.W. FRASER RUSSELL T.W. Fraser Russell	Director	March 13, 2008

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