

Ascent Solar Technologies, Inc.
Form SB-2
August 31, 2006

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As filed with the Securities and Exchange Commission on August 31, 2006

Securities Act File No. 333-

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

FORM SB-2

REGISTRATION STATEMENT

Under

The Securities Act of 1933

Ascent Solar Technologies, Inc.

(Exact name of registrant as specified in its charter)

Delaware
(State or Other Jurisdiction of
Incorporation or Organization)

3674
(Primary Standard Industrial
Classification Code Number)
8120 Shaffer Parkway
Littleton, Colorado 80127
(303) 420-1141

20-3672603
(I.R.S. Employer
Identification No.)

(Address and Telephone Number of Principal Executive Offices and Principal Place of Business)

Matthew Foster
8120 Shaffer Parkway
Littleton, Colorado 80127
(303) 420-1141

(Name, Address and Telephone Number of Agent for Service)

Copy to:
Mark A. von Bergen
David C. Wang
Holland & Knight LLP
2300 US Bancorp Tower
111 SW Fifth Avenue
Portland, OR 97204
(503) 243-2300

Approximate Date of Commencement of Proposed Sale to Public: As soon as practicable after this registration statement becomes effective.

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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, check the following box.

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

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

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

If delivery of the prospectus is expected to be made pursuant to Rule 434, please check the following box.

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.

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to Be Registered	Amount to be Registered	Proposed Maximum Offering Price per Security(1)	Proposed Maximum Aggregate Offering Price	Amount of Registration Fee(2)
Common Stock, \$0.0001 par value per share	290,894	\$3.01	\$875,590.94	\$93.69
Class A warrants (redeemable)	290,894	\$0.65	\$189,081.10	\$20.23
Class B warrants (non-redeemable)	581,788	\$0.41	\$238,533.08	\$25.52
Common stock issuable upon exercise of Class A warrants(3)	290,894	\$3.01	\$875,590.94	\$93.69
Common stock issuable upon exercise of Class B warrants(3)	581,788	\$3.01	\$1,751,181.88	\$187.38
TOTAL:			\$3,929,977.94	\$420.51

- (1) Estimated solely for purposes of calculating the amount of the registration fee paid pursuant to Rule 457(c) under the Securities Act, based upon the average of the high and low prices of the common stock and warrants on August 24, 2006, as reported on the Nasdaq Capital Market.
- (2) The filing fee is calculated based on the filing fee of \$107 per million in the maximum aggregate offering price.
- (3) Pursuant to Rule 416 under the Securities Act, there are also being registered hereby such additional indeterminate number of securities as may become issuable pursuant to the anti-dilution provisions of the public warrants and the representative's warrants.

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 have filed a registration statement with the Securities and Exchange Commission relating to this offering. 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 state where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED AUGUST 31, 2006

PROSPECTUS

1,163,576 shares of common stock
290,894 redeemable Class A warrants
581,788 non-redeemable Class B warrants

This prospectus relates to the offer and resale by certain of our stockholders and warrant holders, referred to as "Selling Securityholders," of up to 290,894 redeemable Class A warrants, 581,788 non-redeemable Class B warrants, and 1,163,576 shares of our common stock that they own or that they may acquire pursuant to the exercise of warrants. We will not receive any proceeds from the sale of these securities. We are registering these securities for resale by the Selling Securityholders, but that does not necessarily mean that they will sell any of the securities.

Our common stock, Class A warrants and Class B warrants currently are listed and trade on the Nasdaq Capital Market under the symbols ASTI, ASTIW and ASTIZ, respectively, and on the Boston Stock Exchange under the symbols AKC, AKC&L and AKC&Z, respectively. On August 31, 2006, the last reported sale prices of our common stock, Class A warrants and Class B warrants were \$ _____ per share and \$ _____ per Class A warrant and \$ _____ per Class B warrant.

These are speculative securities. Investing in these units involves significant risks. You should purchase these securities only if you can afford a complete loss of your investment. See "Risk Factors" beginning on page 5.

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

The date of this prospectus is _____, 2006

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Notice to Arizona investors: Each purchaser of our securities in Arizona must meet one of the following suitability standards: (1) annual gross income of at least \$100,000 (\$150,000 when combined with spouse) with a reasonable expectation of such income in the current year; or (2) minimum net worth of at least \$250,000 (\$300,000 when combined with spouse), exclusive of home, home furnishings and automobiles, with the investment not exceeding 10% of the net worth of the investor, together with spouse, if applicable.

Notice to California investors: Each purchaser of our securities in California must meet one of the following suitability standards: (1) annual gross income of at least \$65,000 and liquid net worth of at least \$250,000 (exclusive of home, home furnishings and automobiles); (2) liquid net worth of at least \$500,000 (exclusive of home, home furnishings and automobiles); (3) net worth of at least \$1,000,000 (inclusive of home, home furnishings and automobiles); or (4) annual gross income of at least \$200,000. This offering was approved in California on the basis of a limited offering qualification where offers/sales can only be made to investors who meet the foregoing suitability standards. The company did not have to demonstrate compliance with some or all of the merit regulations of the Department of Corporations as found in Title 10, California Code of Regulations, Rule 260.140 et seq. Furthermore, the exemptions for secondary trading available under California Corporations Code Section 25104(h) will be withheld, but there may be other exemptions available to cover private sales.

Notice to New Jersey investors: Each purchaser of our securities in New Jersey must meet one of the following suitability standards: (1) annual gross income of at least \$65,000 and liquid net worth of at least \$250,000 (exclusive of home, home furnishings and automobiles); (2) liquid net worth of at least \$500,000 (exclusive of home, home furnishings and automobiles); (3) net worth of at least \$1,000,000 (inclusive of home, home furnishings and automobiles); or (4) annual gross income of at least \$200,000. Furthermore, there will be no secondary sales of the securities to persons in New Jersey who do not meet the foregoing suitability standards for 90 days after the date of this offering.

PROSPECTUS SUMMARY

This is only a summary and does not contain all the information that may be important to you. You should read the more detailed information contained in this prospectus, including the risk factors beginning on page 5. References to "we," "us," "our," "Ascent" or the "Company" mean Ascent Solar Technologies, Inc.

Our Company

Ascent, a development stage company, was formed in October 2005 to commercialize certain photovoltaic ("PV") technology developed by ITN Energy Systems, Inc. ("ITN") for space and near-space applications. By leveraging this technology inherited from ITN, we intend to be the first company to manufacture PV modules in commercial quantities that use a highly efficient thin-film Copper-Indium-Gallium-diSelenide ("CIGS") absorbing layer on a flexible high-temperature plastic substrate. We have produced and tested small-scale demonstration samples of our CIGS PV products at the laboratory level, but we have not yet produced any products in commercial quantities nor have we yet received any revenues from the proposed products that we intend to commercialize as our principal business activity. We intend to use the majority of the net proceeds of our initial public offering to establish a production line that will enable us to transition into full-scale, commercial manufacturing of our CIGS PV products.

When used on space satellites and near-space aircraft, PV devices convert sunlight into the electricity needed to reliably power instruments, communications systems and the like. Currently, most PV devices used for space and near-space applications are rigid, bulky and relatively heavy, posing significant challenges to scientists and designers wishing to minimize volume and weight in order to maximize payload and reduce deployment costs. In addition to these shortcomings, PV devices traditionally used for such applications are expensive to manufacture and require the time-consuming and labor-intensive task of connecting individual solar cells together to create a complete PV module.

We hope to overcome many of these limitations by offering a flexible, lightweight PV product suitable for space and near-space applications. By employing a proprietary monolithic integration fabrication process, we intend to manufacture our PV devices on the module level, rather than the cell level, thereby avoiding the time-consuming and weight-additive cell-to-cell interconnect procedures utilized by other PV device manufacturers. We believe that our choice of substrate materials and proprietary monolithic integration fabrication processes should permit us to achieve cost, volume and weight performance advantages over competitors in our target markets. As a result, we believe that we will be well-positioned to capture opportunities in markets that require or desire highly efficient, lightweight and flexible PV power sources, including the markets for military and commercial spacecraft and satellites and the emerging high-altitude airship ("HAA") initiatives under the supervision of the U.S. Department of Defense.

Although we anticipate making slight variations to address specific market or customer requirements, such as optimized space coatings and protection diode methods, the basic design and architecture of our CIGS PV cells and modules are complete. We are continuing to develop and optimize our monolithic integration fabrication process and plan to complete such developments by October 2006, after which we intend to demonstrate larger area, fully integrated prototype modules for pre-manufacturing testing.

We are building a 500 kilowatt ("kW") per shift annual capacity production line. Using this production line, we hope to begin fabrication of rolls and sheets of thin-film PV modules by 2008. We intend to distribute the rolls or sheets of PV modules to system integrators and manufacturers of spacecraft, satellites and HAAs, who may then integrate the materials into their unique systems and applications. By running more than one shift daily, we anticipate having annual capacity to manufacture PV modules capable of generating over 1 megawatt ("MW"), or 1,000 kW, of power.

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ITN, a private company incorporated in 1994, is an incubator dedicated to the development of cutting-edge thin-film, PV, battery and fuel cell technologies. Through its work on 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 Ascent to commercialize this investment in CIGS PV technologies for the space and near-space markets. In January 2006, ITN assigned to us its key CIGS PV technologies and trade secrets and granted to us an exclusive, worldwide license to use certain of ITN's proprietary process, control and design technologies in the production of CIGS PV solar modules for our target markets. ITN also agreed to seek permission to assign certain third-party research and development contracts to us, and we expect that a number of ITN employees with experience in CIGS PV technology will join Ascent in the future. ITN also has agreed to design and build our initial production line, which will utilize ITN's proprietary roll-to-roll processing tools, real-time intelligent processing controls and thin-film processing technologies, and to provide us at cost with administrative services such as facilities management, equipment maintenance, human resources, procurement, information technology services and accounting. See "Related Party Transactions" for details about our agreements with ITN.

Our principal business office is located at 8120 Shaffer Parkway, Littleton, Colorado, and our telephone number is (303) 420-1141. Our website address is www.ascentsolartech.com. Information contained in our website or any other website does not constitute part of this prospectus.

This Offering

In January 2006, pursuant to an exemption under Rule 506 of Regulation D promulgated under the Securities Act of 1933, as amended, we completed a \$1.6 million bridge financing from to help us meet our working capital needs. In connection with the bridge financing, we issued rights ("Bridge Rights") to the lenders. One Bridge Right was issued for every \$25,000 loaned and entitled each lender to receive units identical to the units issued in our 2005 initial public offering, which closed on July 14, 2006. In the aggregate, the lenders received 290,894 restricted units, each unit consisting of one share of common stock, one redeemable Class A warrant and two non-redeemable Class B warrants. The Class A warrants and Class B warrants each are exercisable for one share of common stock.

The units sold in our initial public offering stopped trading on August 9, 2006; and, beginning on August 10, 2006, our shares of common stock, Class A warrants and Class B warrants have traded separately on the Nasdaq Capital Market and Boston Stock Exchange. This prospectus relates to the offer and resale by the lenders of the common stock, Class A warrants, Class B warrants (and common stock underlying the Class A and Class B warrants) issued in connection with the Bridge Rights.

Securities offered

The securities covered by this prospectus are: (i) 290,894 redeemable Class A warrants; (ii) 581,788 non-redeemable Class B warrants; and (iii) 1,163,576 shares of common stock, which include 290,894 shares that are a component of the units issued to the bridge lenders, as well as 290,894 shares issuable upon exercise of the Class A warrants and 581,788 shares issuable upon exercise of the Class B warrants.

Class A warrants

The exercise price of each Class A warrant is \$6.60. The Class A warrants expire on July 10, 2011, but if the warrants are not exercisable at that time because a current registration statement for the underlying shares is not available, then the expiration date will be extended for 30 days following notice from us that the warrants are again exercisable. Nevertheless, there is a possibility that the warrants will never be exercisable when in-the-money or otherwise, and that warrant holders will never receive shares or payment of cash in settlement of the warrants. See page 12 of "Risk Factors" for more detail.

We will have the right to redeem the Class A warrants issued in this offering at a redemption price of \$0.25 per warrant at any time after (i) January 6, 2007 and (ii) the date on which the closing price of our common stock, as reported on the Nasdaq Capital Market, has equaled or exceeded \$9.35 for five consecutive trading days. We are required to provide 30 days' prior written notice to the Class A warrant holders of our intention to redeem the warrants.

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Class B warrants	The exercise price of a Class B warrant is \$11.00. The Class B warrants expire on July 10, 2011, but if the warrants are not exercisable at that time because a current registration statement for the underlying shares is not available, then the expiration date will be extended for 30 days following notice from us that the warrants are again exercisable. Nevertheless, there is a possibility that the warrants will never be exercisable when in-the-money or otherwise, and that warrant holders will never receive shares or payment of cash in settlement of the warrants. See page 12 of "Risk Factors" for more detail.
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The Class B warrants are not redeemable.

Common stock outstanding after this offering	5,298,894 shares
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Use of proceeds	None of the proceeds from the sale of the securities by the Selling Securityholders will be received by us.
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Nasdaq Capital Market symbols	Common stock:	ASTI
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	Class A warrants:	ASTIW
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	Class B warrants:	ASTIZ
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Boston Stock Exchange symbols	Common stock:	AKC
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	Class A warrants:	AKC&L
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	Class B warrants:	AKC&Z
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Risk factors	Investing in the units involves a high degree of risk. You should be able to bear a complete loss of your investment. You should carefully consider the information set forth in the "Risk Factors" section.
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We have 5,298,894 shares of common stock issued and outstanding as of August 15, 2006. Unless the context indicates otherwise, all share and per-share common stock information in this prospectus:

assumes no exercise of the Class A and Class B warrants;

assumes no exercise of the underwriters' over-allotment option to purchase up to 450,000 units;

assumes no exercise of the representative's warrants issued in our initial public offering; and

excludes no further exercise of up to 750,000 shares reserved under our 2005 Stock Option Plan.

RISK FACTORS

An investment in our securities 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 in this prospectus, before purchasing our units. 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 securities could fall, causing you to lose some or all of your investment in the securities we are offering. The following is a description of what we consider to be our key challenges and all material risks to our business and securities.

Risks Relating to Our Business

We have no history of operations and are therefore subject to various startup company risks.

We were formed in October 2005 and our business to date has consisted of initial setting up of operations to pursue our business plan. In order to pursue our plan, we will have to continue to establish internal infrastructure, hire additional personnel, adopt company plans and procedures, set up a sales organization, oversee the design and construction of our initial production line and otherwise establish the functional capabilities of an operating company. Accomplishing this task may take longer or cost more than expected, and it is likely that problems that we cannot now anticipate will require solution. We cannot assure you that we will be successful in establishing ourselves as an operating company.

We intend to address an unproven market that may not justify our commitment to it.

We intend to develop and offer flexible, lightweight, high efficiency PV products for use in space and near-space applications. Because existing PV technology has suffered from weight, volume and cost constraints that have limited its use in these applications, there is no established market for our flexible thin-film CIGS technology. Our business plan assumes that such a market will develop as a result of the technological improvements that we have made and expect to continue to make. We cannot assure you that such a market will develop or, if it does develop, that it will meet our expectations.

Many of the applications for which we intend to compete will require further technological development, which we cannot guarantee.

Discussions with some potential purchasers of our PV products have been based on the assumption that we will continue to improve the cost, performance/weight and performance/volume characteristics of our planned products. While we believe that the assumptions on which these discussions have been based are reasonable, we cannot assure you that we will be able to achieve these improvements. If we are not able to achieve these improvements, the use of our PV products may be unfeasible or economically unattractive to our potential customers, in which case the sales assumptions underlying our business plan would be incorrect.

If we are not selected to participate in Lockheed Martin's HAA program, we would be forced to either generate revenue or seek funds from other sources to support our operations.

In October 2005, we submitted a written proposal to supply CIGS on high-temperature plastic substrate PV modules to Lockheed Martin Corporation ("Lockheed Martin") for use in an operational prototype HAA program. The operational prototype program, which contemplates the construction and launch of an operational HAA vehicle, would follow the assembly of a prototype "test" HAA ("Test HAA") currently sponsored by the Missile Defense Agency. Lockheed Martin announced last year that it expects to launch the Test HAA in 2009 for a limited duration flight. The development and launch of the operational prototype HAA are expected to follow that of the Test HAA. Our written proposal is divided into several development phases and a production phase. Participation in and throughout each

phase generally is dependent upon continued satisfactory performance. However, our planned products may not meet Lockheed Martin's technical specifications in each phase of the project, and we may not be able to produce an adequate amount of satisfactory product within the time frames contemplated by Lockheed Martin. If Lockheed Martin does not select us as a supplier for the planned operational prototype project or if it eliminates us as a supplier of the project, we may be forced to seek alternate customers or other sources of funding to support our operations after the net proceeds from our initial public offering are consumed. Without revenues from such customers or funding, we might be forced to curtail or even cease operations.

Failure of the HAA market to develop as quickly as we envision would adversely affect our projected sales, growth and revenues.

The HAA market is in its infancy, and should the market opportunity not materialize, opportunities for growth may be limited. In particular, there is not yet long-term government funding for HAA projects. Because HAA projects will be subject to the size and priorities of government budgets, the funding for HAA projects always will be at risk. For example, there is a risk that Lockheed Martin's prototype projects could be curtailed, delayed or cancelled as a result of budgetary constraints, political considerations, emergence of competing technologies or other events. Also, technical or other obstacles encountered by Lockheed Martin during its Test HAA program may impact the timing, funding or viability of the planned operational prototype HAA in connection with which we have submitted a written proposal. As a small, start-up company, we have little opportunity to exert significant influence on the technical, economic and policy issues that will determine the nature, scope and timing of the Lockheed Martin projects or the HAA market as a whole. If our expectations with respect to the project or the HAA market are not justified, our business would be adversely impacted, we would be forced to rely more heavily on sales in other markets, our growth would be slower than planned and we may be forced to curtail or even cease operations.

We have no contracts for PV products and have recorded no sales of such products; we expect that significant PV product sales will not occur for some time.

We have recorded no sales of PV products and have no contracts for such sales. Because of the nature of the projects in which such products may be used, we expect that the sales cycle will be quite long; therefore, we believe that it will be at least 18 months before we record any PV product sales, although we expect to record revenue from the performance of research and development contracts in the interim. As a result, we expect that it will be some time before we can determine whether our expectations relating to our planned products and their target markets are justified. Also, as a result, we will be required to invest substantial resources in pursuing these markets in advance of any significant revenue stream that may result from such investments. An unanticipated or longer than expected delay revenue ramp-up could put a strain on our capital resources and require us to seek additional capital.

We intend to sell our PV modules to contractors of government-funded projects, which will be subject to political, scheduling and funding risks.

We intend initially to sell our PV modules to system integrators and manufacturers of spacecraft, satellites and HAAs participating in government-funded projects. We would be a subcontractor or supplier on these projects. The government agencies overseeing the projects are subject to economic and political pressures that dictate the manner in which they spend money. As a result, even if a contractor or government agency wants to purchase our PV modules, it may be unable to do so due to budgetary or political constraints. Orders may be canceled or substantially delayed due to budgetary, political or other scheduling delays that frequently occur in connection with government-funded projects. Any such cancellations or delays would likely adversely affect our business.

Because the nature of our operations will be different than that of ITN, the financial statements of the transferred assets of ITN that are included in this prospectus are not representative of our business or prospects.

ITN has been and is a research and development company that performs development contracts for private and government entities. ITN derives no significant revenue from commercial manufacturing and sales. In contrast, Ascent was formed to commercialize CIGS PV technologies for the space and near-space markets. Over time, we expect that our revenues will result primarily from commercial sales of our planned products. Consequently, the historical financial statements of Ascent and for the Transferred Assets that are part of this prospectus are not indicative of our prospects as a manufacturing company and do not represent our historical operations.

A failure by ITN to transfer PV research and development contracts to us could impair our revenues and hamper our research and development efforts.

Development contracts with third parties provide a source of revenue and enable us to develop new technologies more rapidly than we would be able to do otherwise. In a typical year, ITN historically has realized annual revenues between \$1 million and \$3 million from PV research and development programs. These contracts with third-parties include Small Business Innovation Research ("SBIR") contracts sponsored by government agencies, non-SBIR government contracts and agreements with non-governmental entities. Although we currently have no such programs, ITN has agreed to seek permission to assign certain third-party research and development contracts to us with a full-year value in 2006 of approximately \$2.5 million and a value in 2007 of approximately \$500,000. However, \$1.7 million in 2006 and \$500,000 in 2007 are attributable to SBIR contracts for which we may not be eligible due to foreign ownership and size requirements in the regulations governing SBIR contracts. Furthermore, there is a possibility that the parties to ITN's non-SBIR contracts will deny ITN permission to transfer some of the contracts to us. Either scenario would prevent us from collecting revenue under at least some of these contracts and might hamper our ability to develop technologies as quickly as planned or at all.

Because we may be ineligible to apply for or service SBIR contracts, we may be forced to seek alternate sources to fund our research and development efforts.

Many PV companies, including some of our competitors, rely on SBIR contracts to develop new technologies. In fact, the majority of funding associated with ITN's third-party research and development projects results from SBIR contracts. After we become a publicly traded company, we may be ineligible to apply for or service SBIR contracts, in which case we would need to find alternate sources to help fund our research and development efforts.

Contracts involving government agencies are subject to the government's authority to unilaterally cancel or modify the contracts.

Contracts involving government agencies may be terminated or modified at the convenience of the agency. Other risks include potential disclosure of our confidential information to third parties and the exercise of "march-in" rights by the government. March-in rights refer to the right of a United States government agency to require us to grant a license to the technology to a responsible applicant or, if we refuse, the government may grant the license itself. The government can exercise its march-in rights if it determines that action is necessary because we fail to achieve practical application of the technology or because action is necessary to alleviate health or safety needs, to meet requirements of federal regulations or to give the United States industry preference. ITN's and our government-sponsored research contracts are subject to audit and require that ITN or we provide regular written technical updates as well as a final report on the results of our technical research. Because these reports are generally available to the public, third parties may obtain some aspects of our sensitive

confidential information. Moreover, the failure to provide these reports or to provide inaccurate or incomplete reports may provide the government with rights to any intellectual property arising from the related research. Funding from government contracts also may limit when and how we can deploy technology developed under those contracts.

We initially will be substantially dependent on the administrative and engineering resources of our parent company ITN Energy Systems, Inc.

ITN will be responsible for designing and building our production line, which we anticipate will require a majority of the net proceeds from our initial public offering. We also will be dependent on ITN, at least initially, to provide administrative services such as facilities management, equipment maintenance, human resources and accounting. Furthermore, ITN has agreed to seek permission from third parties to transfer certain research and development contracts to us. There is a possibility that a party to one or more of these contracts will reject ITN's request, in which case ITN intends to continue to service the contracts for which permission to transfer is denied and, to the extent possible, assign to us the ownership of any inventions developed under those contracts. Although we are entitled to assume ownership of any inventions developed under these government contracts, the inventions themselves largely are predicated on ITN's ability to carry out those contracts successfully. If our relationship with ITN falters or if ITN fails to carry out its services or contracts in a satisfactory manner, our business may suffer.

Conflicts of interest may arise from our close relationship with ITN.

For the foreseeable future, we will be substantially dependent on the administrative and engineering resources of our parent company ITN. Two members of our Board of Directors, Dr. Mohan Misra and Mr. Ashutosh Misra, also serve as directors or officers of ITN. Although we do not expect a conflict of interest due to the dual roles of these individuals, it nevertheless is conceivable that conflicts may arise with respect to, for example, the pricing of services provided by ITN to us, the sharing of resources and the allocation of each individual's time. Furthermore, because Dr. Misra and Mr. Misra may be asked to secure government contracts not only for us, but also for other companies in which they serve as directors or officers, actual or perceived conflicts of interest may arise.

Failure to build or operate our production line successfully would adversely impact our business and financial condition.

We plan to produce our thin-film PV modules using a custom-built 500 kW per shift annual capacity production line beginning in 2008. Design, building and testing of this production line, which has not yet been built, will require a substantial investment of capital, currently estimated by us to be approximately \$8.2 million, which we intend to fund with the net proceeds from our initial public offering. We believe that, if our PV modules are manufactured in large quantities, we will be able to demonstrate manufacturing yields, equipment capability, product performance and product quality that will enable us to produce PV modules for the space and near-space markets at costs lower than those of competitors. However, the successful completion and operation of the production line will require substantial engineering resources and will be subject to significant risks, including risks of cost overruns and delays and the possibility that the production line may never be completed or operational. 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 equipment to build the production line or hire and train the additional employees and management needed to operate the production line. We also may face insurmountable challenges or incur unforeseen expense as when we try to achieve performance results from our planned products produced on a large-scale roll-to-roll production line compared to the results we have achieved in

small-scale laboratory samples. Failure to meet our manufacturing objectives could materially and adversely affect our business, results of operations and financial condition.

If we fail to clear certain technical hurdles, we may not be able to begin commercial production of our CIGS PV modules in 2008 as planned.

Several technical matters must be resolved in order for us to begin commercial production of CIGS PV modules in 2008 as planned. In particular, the Dow Corning Corporation ("DCC"), which we hope will supply us with high-temperature plastic substrate material, must develop capacity to produce the substrate material in commercial quantities. To date, the DCC substrate material is not commercially available, but DCC has informed us that it is making improvements in its ability to provide the material in larger quantities. We also must complete final testing and integration of our monolithic integration technology by early 2007 and implement the intelligent process controls developed by ITN. We inherited both technologies from ITN, but need to tailor them for use in our planned production line. Finally, additional development may be required as we scale up from small laboratory-level batches to large area continuous roll-to-roll production using much larger manufacturing equipment. Scaling up may present us with unforeseen or unexpected technical challenges that we cannot now identify. Our inability to quickly overcome these technical hurdles could delay the timeline for the commercial production of our planned products and adversely affect our anticipated revenues and plan of operations.

Our planned products may not gain market acceptance, in which case we would be unable to sell our products or achieve profitability.

The development of demand for our proposed products and our ability to sell them may be adversely affected by a number of factors, many of which are beyond our control, including:

our failure to produce PV modules that compete favorably against competing products on the basis of cost, quality, weight, efficiency and performance;

our failure to develop or maintain successful relationships with aerospace industry leaders, systems integrators and strategic partners; and

the failure of our planned products to achieve qualification or certification by customers for use in space or near-space applications.

If our planned products fail to gain market acceptance, we would be unable to sell those products or achieve profitability.

Our future success depends on retaining our existing management 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 Matthew Foster, our President and Chief Executive Officer, Dr. Prem Nath, our Senior Vice President of Manufacturing, and Dr. Joseph Armstrong, our Chief Technology Officer. Our success also will depend, in part, on our ability to attract and retain highly skilled employees, including management, technical and sales personnel. The loss of services 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.

As a reporting company, we will be required to disclose detailed aspects of our business on a regular and ongoing basis that our competitors might use against us.

The United States Securities and Exchange Commission requires that all public companies disclose certain detailed financial information including the discussion of known trends, demands, events and

uncertainties with specific disclosure about liquidity, capital resources, and critical accounting estimates. In the course of conducting our business, it may on occasion be necessary to publicly disclose certain financial, market, production, technology, product, or other material information that we would otherwise consider proprietary and competitively sensitive. As a result, our competitors may use this information in ways that would adversely affect our earnings, growth and revenues and hamper our ability to adequately protect our intellectual property and carry out our strategic plans.

We may be unable to adequately protect or enforce our proprietary information, which may result in its unauthorized use or reduced sales or otherwise reduce our ability to compete.

Our business and competitive position depend upon our ability to protect our proprietary technology. Despite our efforts to protect this information, unauthorized persons may attempt to obtain and use information that we regard as proprietary. Any patents issued in connection with our efforts to develop new technology for solar power products may not be broad enough to protect all of the potential uses of the technology.

When others are responsible for the control, 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 the intellectual property rights does not adequately protect those rights, our rights may be impaired, which may impact our ability to develop, market and commercialize our planned products.

Our means of protecting our proprietary 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.

Our employees, consultants and advisors execute proprietary information and invention agreements when they begin working for us. However, these agreements may not provide meaningful protection for our trade secrets or other proprietary information in the event of unauthorized use or disclosure. Failure to maintain trade secret and patent protection may adversely affect our business.

Successful infringement claims by third parties could result in substantial damages, lost product sales and the loss of important proprietary rights.

There has been substantial litigation regarding patent and other intellectual property in various high technology industries. In the future, we may be notified of allegations that we may be infringing on intellectual property rights possessed by others. Should litigation be brought against us, such litigation could be extremely expensive and time consuming and could materially adversely affect our business, financial condition and results of operations, regardless of the outcome of the litigation. Such litigation could also result in loss of certain proprietary rights, significant monetary liability and barriers to product manufacturing. Any of these outcomes could materially harm our business and have a material negative impact on the value of your investment.

We are a party to confidentiality agreements that the breach of which may lead to termination of important contracts, injunctive relief or damages.

In the course of our business, we enter into nondisclosure and other types of agreements whereby we, and typically the other party to the agreements, agree not to disclose confidential information. These confidentiality obligations are particularly important in the defense industry where we intend to operate. We have instituted internal procedures to ensure that we do not violate nondisclosure covenants, but we cannot assure that these procedures will be effective in protecting sensitive

information. Moreover, our disclosure obligations as a public company may create a conflict between our duty to disclose material information to the public and our obligation to keep certain proprietary information confidential. Our failure to abide by our confidentiality obligations may lead to termination of our relationship with contracting parties, imposition of injunctive relief against us or damages. In May 2006, we received notification from Lockheed Martin that ITN had breached its data exchange agreement with Lockheed Martin and consequently the agreement would be terminated. Lockheed Martin has since entered into a new agreement with ITN and us to protect confidential information, based on Lockheed Martin's satisfaction with the procedures we have adopted to protect confidential information. While we intend to take all reasonable measures to protect confidential information of parties with whom we contract, there can be no assurance that our procedures will be effective and that we will not breach our confidentiality agreements.

Risks Related to Investment in Our Securities

As a public company, we are subject to complex legal and accounting requirements that require us to incur substantial expense and expose us to risk of non-compliance.

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 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.

While the Class A and Class B warrants remain outstanding, it may be more difficult to raise additional equity capital.

While the Class A and Class B warrants remain outstanding, the holders of those warrants are given the opportunity to profit from a rise in the market price of our common stock, and we may not redeem the Class A warrants except under certain conditions or the Class B warrants at all. 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 able to obtain additional equity capital on more favorable terms from other sources. Accordingly, any exercise of the warrants likely would be dilutive to existing stockholders.

If we seek additional capital in the future, your investment could be diluted.

If we are forced to seek additional capital in pursuit of our business objectives, such additional capital, if available, could substantially dilute our then-existing investors.

If we issue shares of preferred stock, your investment could be diluted or subordinated to the rights of the holders of preferred stock.

Our Board of Directors 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 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. Although we have no plans to issue any shares of preferred stock or to adopt any new series, preferences or other classification of preferred stock, any such action by our Board of Directors or

issuance of preferred stock by us could dilute your investment in our common stock and warrants or subordinate your holdings to the shares of preferred stock.

Future sales or the potential for future sales of our securities may cause the trading price of our common stock and Class A and Class B warrants 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.

If we do not maintain an effective registration statement or comply with applicable state securities laws, you may not be able to exercise the Class A or Class B warrants.

For you to be able to exercise the Class A or Class B warrants, the shares of our common stock to be issued to you upon exercise of the Class A or Class B warrants must be covered by an effective and current registration statement and qualify or be exempt under the securities laws of the state or other jurisdiction in which you live. We cannot assure you that we will continue to maintain a current registration statement relating to the shares of our common stock underlying the Class A or Class B warrants. If at their expiration date the 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 warrants and the securities underlying the 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. In sum, the Company and you may encounter circumstances in which you will be unable to exercise the Class A or Class B warrants. In those circumstances, the Company may, but is not required to, redeem the warrants by payment in cash. Consequently, there is a possibility that you will never be able to exercise the Class A or Class B warrants, and that you will never receive shares or payment of cash in settlement of the warrants. This potential inability to exercise the Class A or Class B warrants, and the possibility that the Company will never opt to settle warrants in shares or cash, may have an adverse effect on demand for the warrants and the prices that can be obtained from reselling them.

FORWARD-LOOKING STATEMENTS

We make forward-looking statements in this prospectus that are subject to risks and uncertainties. These forward-looking statements include information about possible or assumed future results of our business, financial condition, liquidity, results of operations, plans and objectives. In some cases, you may identify forward-looking statements by words such as "may," "should," "plan," "intend," "potential," "continue," "believe," "expect," "predict," "anticipate" and "estimate," the negative of these words or other comparable words. These statements are only predictions. You should not place undue reliance on these forward-looking statements. The forward-looking statements are qualified by their terms and/or important factors, many of which are outside our control, involve a number of risks, uncertainties and other factors that could cause actual results and events to differ materially from the statements made. The forward-looking statements are based on our beliefs, assumptions and expectations of our future performance, taking into account information currently available to us. These beliefs, assumptions and expectations can change as a result of many possible events or factors, including those events and factors described in "Risk Factors," not all of which are known to us. Neither we nor any other person assumes responsibility for the accuracy or completeness of these statements. We will update this prospectus only to the extent required under applicable securities laws. If a change occurs, our business, financial condition, liquidity and results of operations may vary materially from those expressed in our forward-looking statements.

USE OF PROCEEDS

We will not receive any proceeds upon the sale of any of the securities registered on behalf of the Selling Securityholders.

Should the Class A and Class B warrants that are components of the units issued in connection with the Bridge Rights be exercised, we will receive total additional proceeds of approximately \$8,319,500. If received, we expect to use these proceeds to fund working capital and general corporate expenses.

SELLING SECURITYHOLDERS

The following table sets forth certain information with respect to the beneficial ownership of our securities by each Selling Securityholder as of the date of this Prospectus, and as adjusted to reflect the sale of all the securities offered by the Selling Securityholders.

Selling Securityholder	Securities Beneficially Owned Prior to the Offering and Offered Hereby				Securities Beneficially Owned After the Offering			
	Common Stock	Class A Warrant	Class B Warrant	Common Stock Underlying Warrants	Common Stock	Class A Warrant	Class B Warrants	Common Stock Underlying Warrants
2030 Investors LLC	9,090	9,090	18,180	27,270	0	0	0	0
Charles W. Botsford	4,545	4,545	9,090	13,635	0	0	0	0
Harold R. & Linda L. Clayton (JTWROS)	9,090	9,090	18,180	27,270	0	0	0	0
David Dreyfuss	4,545	4,545	9,090	13,635	0	0	0	0
Gerald Ferro	9,090	9,090	18,180	27,270	0	0	0	0
Robert Thomas & Emily Janet Fetters (JTWROS)	4,545	4,545	9,090	13,635	0	0	0	0
Irwin & Joan Geduld TTEE FBO Irwin Geduld Revocable Trust DTD 6/11/02	18,181	18,181	36,362	54,543	0	0	0	0
Generation Capital Associates	50,000	50,000	100,000	150,000	0	0	0	0
Glenbrook Capital L.P.	13,636	13,636	27,272	40,908	0	0	0	0
Donald J. Helfgott	9,090	9,090	18,180	27,270	0	0	0	0
William G. Hunt	4,545	4,545	9,090	13,635	0	0	0	0
William M. Levin	4,545	4,545	9,090	13,635	0	0	0	0
Les and Ann Mombert (JTWROS)	4,545	4,545	9,090	13,635	0	0	0	0
Nathan Orme, IRA	4,545	4,545	9,090	13,635	0	0	0	0
Dennis & Cindy Pak (JTWROS)	9,090	9,090	18,180	27,270	0	0	0	0
Professional Traders Fund, LLC	45,454	45,454	90,908	136,362	0	0	0	0
Seymour Rosenthal, IRA	9,090	9,090	18,180	27,270	0	0	0	0
Parisa Roshanzamir & Shawn Zahed (JTWROS)	9,090	9,090	18,180	27,270	0	0	0	0
Saybrook L.P.	18,181	18,181	36,362	54,543	0	0	0	0
SCG Capital, LLC	18,181	18,181	36,362	54,543	0	0	0	0
Morton Topfer	9,090	9,090	18,180	27,270	0	0	0	0
Triangle Holdings VI LLC	18,181	18,181	36,362	54,543	0	0	0	0
Gary Ziegler	4,545	4,545	9,090	13,635	0	0	0	0
					0	0	0	0

None of the Selling Securityholders has been a director, officer or employee or has had any other material relationship with us in the past three years.

PLAN OF DISTRIBUTION

Each Selling Securityholder and its pledgees, assignees and successors-in-interest may, from time to time, sell any or all of its shares of common stock or warrants on a stock exchange, market or trading facility on which those securities are traded or in private transactions. These sales may be at fixed or negotiated prices. A Selling Securityholder may use any one or more of the following methods when selling shares and warrants:

ordinary brokerage transactions and transactions in which the broker dealer solicits purchasers;

block trades in which the broker dealer will attempt to sell the shares or warrants as agent but may position and resell a portion of the block as principal to facilitate the transaction;

purchases by a broker dealer as principal and resale by the broker dealer for its account;

an exchange distribution in accordance with the rules of the applicable exchange;

privately negotiated transactions;

settlement of short sales entered into after the effective date of the registration statement of which this prospectus is a part;

broker dealers may agree with the Selling Securityholders to sell a specified number of such shares or warrants at a stipulated price per share;

through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;

a combination of any such methods of sale; or

any other method permitted pursuant to applicable law.

The Selling Securityholders may also sell shares under Rule 144 under the Securities Act, rather than under this prospectus.

The Selling Securityholders may also engage in short sales against the box, puts and calls and other transactions in our securities or derivatives of our securities and may sell or deliver securities in connection with these trades.

Broker dealers engaged by the Selling Securityholders may arrange for other broker dealers to participate in sales. Broker dealers may receive commissions or discounts from the Selling Securityholders (or, if any broker-dealer acts as agent for the purchaser of shares, from the purchaser) in amounts to be negotiated. It is not expected that these commissions and discounts will exceed what is customary in the types of transactions involved. Any profits on the resale of shares or warrants by a broker dealer acting as principal might be deemed to be underwriting discounts or commissions under the Securities Act. Discounts, concessions, commissions and similar selling expenses, if any, attributable to the sale of shares or warrants will be borne by a selling stockholder. The Selling Securityholders may agree to indemnify any agent, dealer or broker-dealer that participates in transactions involving sales of the shares or warrants if liabilities are imposed on that person under the Securities Act.

The Selling Securityholders may from time to time pledge or grant a security interest in some or all of the shares or warrants owned by them and, if they default in the performance of their secured obligations, the pledgees or secured parties may offer and sell the shares or warrants from time to time under this prospectus after we have filed an amendment to this prospectus, amending the list of Selling Securityholders to include the pledgee, transferee or other successors in interest. The Selling Securityholders also may transfer the shares or warrants in other circumstances, in which case the transferees, pledgees, donees or other successors in interest will be the selling beneficial owners for purposes of this prospectus and may sell the shares or warrants from time to time under this

prospectus, amending the list of Selling Securityholders to include the pledgee, donee, transferee or other successors in interest.

The Selling Securityholders and any broker dealers or agents that are involved in selling the shares or warrants may be deemed to be "underwriters" within the meaning of the Securities Act in connection with such sales. In such event, any commissions received by such broker dealers or agents and any profit on the resale of the shares or warrants purchased by them may be deemed to be underwriting commissions or discounts under the Securities Act.

We are required, or have elected, to pay all fees and expenses incident to the registration of the shares and warrants being registered herein. We are not required to pay commissions and other selling expenses. We have agreed to indemnify the Selling Securityholders against certain losses, claims, damages and liabilities, including liabilities under the Securities Act arising out of or based upon any untrue or alleged untrue statement of a material fact contained in the registration statement, any prospectus or any form of prospectus or in any amendment or supplement thereto or in any preliminary prospectus, or arising out of or based upon any omission or alleged omission of a material fact necessary to make the statements therein not misleading.

The anti-manipulation rules of Regulation M under the Securities Exchange Act of 1934 may apply to sales of common stock and activities of the Selling Securityholders.

MARKET FOR COMMON EQUITY AND RELATED STOCKHOLDER MATTERS

Market Information

On July 11, 2004, our units began trading on the Nasdaq Capital Market under the symbol ASTIU and on the Boston Stock Exchange under the symbol AKC/U. On August 9, 2006, our units ceased trading, and on August 10, 2006, the common stock, Class A warrants and Class B warrants began trading separately on the Nasdaq Capital Market under the symbols ASTI, ASTIW and ASTIZ, respectively, and on the Boston Stock Exchange under the symbols AKC, AKC&L and AKC&Z, respectively. Before our initial public offering, there was no established public market for our common stock; therefore, our common stock did not trade separately prior to June 30, 2006, the end of our last fiscal quarter. We believe that as of August 15, 2006, there were over 300 holders of record of our common stock.

Dividends

We have not declared or paid any dividends and do not intend to pay any dividends in the foreseeable future. We intend to retain any future earnings for use in the operation and expansion of our business. Any future decision to pay dividends on common stock will be at the discretion of our Board of Directors and will depend upon our financial condition, results of operations, capital requirements and other factors our board of directors may deem relevant.

**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 the financial statements and related notes to the financial statements included elsewhere in this prospectus. This discussion contains forward-looking statements that relate to future events or our future financial performance. These statements involve known and unknown risks, uncertainties and other factors that may cause our actual results, levels of activity, performance or achievements to be materially different from any future results, levels of activity, performance or achievements expressed or implied by these forward-looking statements. These risks and other factors include, among others, those listed under "Risk Factors" and those included elsewhere in this prospectus.

Introduction

Ascent was formed to commercialize CIGS PV technology developed by ITN for the space and near-space markets. For over a decade, ITN had been engaged in the research and development of PV technologies and devices. Funded largely by contracts sponsored by government agencies such as the U.S. Air Force Research Laboratory, the National Science Foundation, the National Renewable Energy Laboratory, the Defense Advanced Research Projects Agency, the Missile Defense Agency and NASA, ITN developed roll-to-roll fabrication of a CIGS absorbing layer on a stainless steel metal substrate in the late 1990s. ITN then developed the technology necessary to put a CIGS absorbing layer on high-temperature plastic and produced and tested small area demonstration cells of CIGS on high-temperature plastic. This new technology has been transferred to us and will comprise the technical foundation for our initial product line and business in the near-term.

Unlike ITN, we intend primarily to be a commercial manufacturing company engaged in the production of CIGS PV on high-temperature plastic modules. Our near-term objective is to assemble a 500 kW/shift/year production line by the end of 2007 and begin commercial production of CIGS PV on high-temperature plastic modules by 2008. We expect to remain substantially dependent upon the net proceeds from our initial public offering until commencement of commercial production, after which we hope that revenues from sales will be sufficient to sustain all or a substantial portion of our ongoing operations.

Our most serious near-term challenges and uncertainties relate to product development and manufacturing, on the one hand, and to sales and marketing, on the other.

Product Development and Manufacturing

Meeting the 2008 production deadline with products that satisfy the technical specifications demanded by potential customers, including by Lockheed Martin in the early stages of its HAA prototype project, will require timely resolution of certain technical matters. These matters relate to the supply of our substrate material, further testing of our monolithic integration technology and our intelligent process controls.

We currently obtain the majority of our high-temperature plastic substrate material from Ube Industries, Ltd. (Japan) ("Ube"). We believe the supply of this material from Ube will be available to us in commercial quantities. However, we also have tested our CIGS absorbing layer on a relatively new high-temperature silicone resin (also a form of plastic) substrate material developed by the Dow Corning Corporation ("DCC"). The DCC substrate material can be processed at a higher temperature than the Ube substrate material, a feature that typically results in higher PV efficiencies. We therefore believe that the DCC substrate can be successfully used in our CIGS PV products in space and near-space applications, where efficiencies and weight are a critical measurement. To date, however, the DCC substrate is not commercially available, but DCC has informed us that it is improving on its ability to provide the material in larger quantities. However, if sufficient quantities are not available

when we begin production, we will be forced to rely on Ube and other suppliers to provide substrate materials that may result in lower efficiencies for our planned products. Although we do not expect serious technical difficulties in the use of materials from these alternate suppliers, the impact on efficiencies may affect evaluation and qualification of our planned product by prospective customers and force us to boost efficiencies through implementation of other technologies, some of which (such as tandem-junction devices) already are under development by us.

Meeting the projected deadlines also requires final testing and integration of our monolithic integration technology by early 2007. In general, solar cells generate electrical power in small voltage increments; in order to provide a usable voltage and current, individual cells must be interconnected in series to increase voltage (similar to batteries stacked in a flashlight) and in parallel to increase current. In 2000, ITN demonstrated an automated solar cell interconnect technology that takes a large area of plastic coated with solar cell material, then patterns cells and connects them at the same time without cutting through the substrate material. This process, called monolithic integration, eliminates the need for connecting individual cells and thus simplifies the manufacturing process. In 2005, ITN established a next-generation, laser patterning operation to further improve its monolithic integration technology. Now that we own the technology, we intend to tailor it for use in our planned production line. All laser patterning steps and printing steps (which entail the deposition or application of insulating ink layers) have been separately demonstrated, and the first monolithically integrated module (solar cells interconnected by laser patterning) has been produced. We are optimizing the monolithic integration process with Ube's substrate materials for space and near space applications, while ITN is modifying the process for use with DCC's silicone resin substrate material, with the technical aspects of ITN's development to be assigned to us. We expect to be able to demonstrate monolithic integration processes for both substrate materials by the third quarter of 2006, but if we are unable to do so before the latter half of 2007, we might opt to manufacture discrete cells instead of modules. We would then integrate the cells into modules employing approaches developed for use with CIGS on stainless steel substrates. The additional interconnect steps would add cost to our end products, leaving product weight and efficiencies as the primary advantages we believe that our planned products would have over those of competitors. The financial impact of these additional costs cannot be quantified at this time.

We also need to tailor the automated manufacturing control technology developed by ITN, which we refer to as intelligent process controls, for use in our planned production line. We believe that implementation of intelligent process controls, which continuously monitor the manufacturing process, will help to control and maximize product yields and device efficiencies. In addition, the manufacturing process parameters that have demonstrated promising results in small batches at laboratory level may require additional development as we scale up to large area continuous roll-to-roll production methods in much larger manufacturing equipment.

These challenges must be addressed in order for us to execute out our business plan, which contemplates completion of our 500 kW/shift/year production line by the end of 2007. Although we believe that the project can be completed within the contemplated time frame, events such as unforeseen shortages in supplies or equipment or variations in materials costs could force us to modify our development calendar or reallocate funds, which may affect our anticipated cash flow in 2008. Significant delays could require us to seek additional capital in 2008 to sustain operations. Furthermore, because one of our challenges will be to meet the product performance and manufacturing metrics including yield, rate and efficiencies of prospective customers such as Lockheed Martin within their own project calendars, a delay in our own development calendar or our inability to timely resolve one or more of the technical challenges above might jeopardize our ability to attract and retain customers and generate revenues.

Sales and Marketing

The market's acceptance of our planned products poses a significant challenge to our success. Although system developers in the space and near-space markets are in search of efficient, lightweight, flexible and less-expensive PV products, we will be attempting to introduce a new technology into a field dominated by large, established companies that may be reluctant to quickly adopt our newer technologies.

The Missile Defense Agency has awarded Lockheed Martin a contract to deliver the first prototype HAA. Lockheed Martin has begun development and has announced plans to launch a prototype Test HAA in 2009 for a limited duration flight. The launch of an operational prototype HAA is expected to follow; this planned operational prototype program presents a timely opportunity for us to enter the near-space market. Lockheed Martin's timeline is consistent with our development calendar. In October 2005 and in response to a request for proposal, we, together with ITN and with the support of DCC, submitted a written proposal to supply our CIGS on high-temperature plastic substrate PV modules to Lockheed Martin for use on its planned operational prototype HAA program. Our proposal is divided into several development phases and a production ph