Ascent Solar Technologies, Inc.
Form 10-K
March 16, 2010
Table of Contents

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

(Mark One)

x ANNUAL REPORT UNDER SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2009

or

¨ TRANSITION REPORT UNDER SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the Transition Period from to

Commission File No. 001-32919

Ascent Solar Technologies, Inc.

(Exact name of registrant as specified in its charter)

Delaware	**20-3672603**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
12300 Grant Street, Thornton, CO	**80241**
(Address of principal executive offices)	**(Zip Code)**

Registrant s telephone number, including area code: **720-872-5000**

Securities registered pursuant to Section 12(b) of the Act:

Title of Each Class	**Name of Each Exchange on Which Registered**
Common Stock, $0.0001 par value per share	The NASDAQ Stock Market LLC
Class B Warrants	

Securities registered pursuant to Section 12(g) of the Act:

None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ¨ No x

Indicate by check mark whether the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Exchange Act. Yes ¨ No x

Indicate by check mark whether the issuer (1) filed all reports required to be filed by Section 13 or 15(d) of the Exchange Act during the preceding 12 months (or for such shorter period that the registrant was required to file such report(s), and (2) has been subject to such filing requirements for the past 90 days. Yes x No ¨

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Website, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes ¨ No ¨

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant s knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ¨

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.

Large accelerated filer	¨	Accelerated filer	x
Non-accelerated filer	¨ (Do not check if a smaller reporting company)	Smaller reporting company	¨

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ¨ No x

As of June 30, 2009, the last business day of the registrant s most recently completed second fiscal quarter, the aggregate market value of the registrant s common stock held by non-affiliates was approximately $96.4 million based upon the last reported sale price of the registrant s common stock on that date as reported by NASDAQ.

As of February 28, 2010, there were 26,671,943 shares of our common stock issued and outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of registrant s definitive proxy statement for the registrant's 2010 annual meeting of stockholders are incorporated by reference into Part III of this Annual Report.

Table of Contents

ASCENT SOLAR TECHNOLOGIES, INC.

Form 10-K Annual Report

for the Fiscal Year ended December 31, 2009

TABLE OF CONTENTS

		Page
PART I		4
Item 1.	Business	4
Item 1A.	Risk Factors	13
Item 1B.	Unresolved Staff Comments	26
Item 2.	Properties	26
Item 3.	Legal Proceedings	27
Item 4.	(Removed and Reserved)	27
PART II		27
Item 5.	Market for Registrant s Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities	27
Item 6.	Selected Financial Data	31
Item 7.	Management s Discussion and Analysis of Financial Condition and Results of Operations	31
Item 7A.	Quantitative and Qualitative Disclosures About Market Risk	42
Item 8.	Financial Statements and Supplementary Data	43
Item 9.	Changes in and Disagreements with Accountants on Accounting and Financial Disclosure	44
Item 9A.	Controls and Procedures	44
Item 9B.	Other Information	46
PART III		46
Item 10.	Directors, Executive Officers and Corporate Governance	46
Item 11.	Executive Compensation	47
Item 12.	Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters	47
Item 13.	Certain Relationships and Related Transactions, and Director Independence	47
Item 14.	Principal Accounting Fees and Services	47
PART IV		48
Item 15.	Exhibits, Financial Statement Schedules	48
	Signatures	49

Table of Contents

FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K 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 Management s Discussion and Analysis of Financial Condition and Results of Operations and Business. When used in this Annual Report, the words estimates, expects, anticipates, projects, plans, intends, believes, forecasts, foresees, likel 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 Annual Report.

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 Annual Report in the sections captioned Risk Factors and Management s Discussion and Analysis of Financial Condition and Results of Operations. Factors you should consider that could cause these differences are:

Our limited operating history and lack of profitability;

Our ability to secure equity or debt or other financing necessary to fund our operations and the acquisition of additional operating capacity;

Our ability to meet the cost and performance metrics and to implement the production capacity that we have forecasted;

Our ability to develop demand for, and sales of, our photovoltaic modules and establish strategic relationships with key distribution partners, including original equipment manufacturers, system integrators and distributors;

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

Whether we receive timely delivery of production tools from our equipment suppliers;

Our ability to design, purchase, install, qualify and operate production tools pursuant to our business plan and within budgeted amounts;

The extent to which we are able to reduce the per watt manufacturing costs of our photovoltaic modules, and the extent to which our competitors are able to do the same with their photovoltaic modules;

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

The cost-effectiveness of photovoltaic-generated energy relative not only to that generated from conventional sources such as fossil fuels, but also to that generated from other renewable sources which include wind, biomass, geothermal and tidal power;

The availability of, or changes to, government policies, subsidies and incentives that affect the use or cost of renewable energy;

The emergence of disruptive or competing technologies in the energy industry;

Our competitive position and that of our photovoltaic modules relative to others in the photovoltaic and thin-film markets;

The extent to which our interests align with or deviate from that of Norsk Hydro Produksjon AS, our largest stockholder, and its affiliates;

Table of Contents

Foreign currency exchange fluctuations, political instability in certain foreign markets or the general state of geopolitical affairs;

The supply and price of equipment, components and raw materials;

The status of our relationship with ITN Energy Systems, Inc.;

Our ability to attract and retain key executives and employees;

Our continued investment in research and development, and our ability to remain competitive through development of new technologies;

The extent to which we are able to manage the expansion of our operations effectively, both domestically and abroad;

Commencement of legal proceedings against us or by us, including proceedings relating to environmental matters or intellectual property rights;

Our ability to expand and protect the intellectual property portfolio that relates to our photovoltaic modules and processes;

The extent to which we qualify to perform research and development under the federal government s Small Business Innovation Research program; and

General economic and business conditions.

There may be other factors that could cause our actual results to differ materially from the results referred to in the forward-looking statements. We undertake no obligation to publicly update or revise forward-looking statements to reflect subsequent events or circumstances after the date made or to reflect the occurrence of unanticipated events, except as required by law.

References to we, us, our, Ascent, Ascent Solar or the Company in this Annual Report mean Ascent Solar Technologies, Inc.

PART I

Item 1. Business

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 lead 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.

We believe that our technology will provide us advantages in serving the building integrated photovoltaic (BIPV) market, which we expect will be our largest target market, as well as specialty markets like defense and portable power, transportation, and electronic integrated photovoltaic (EIPV). These specialty markets are our immediate target markets until we achieve certification to enter the BIPV segment. Currently these specialty markets require customized high value products. Multiple customers in our target markets have received active

Table of Contents

modules for testing and evaluation and have provided us with positive preliminary performance feedback. We have planned five full scale BIPV demonstration projects with customers in 2010. We also intend to pursue opportunities in the space and near-space markets.

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. Consequently, we do not face the supply constraints and raw material costs that may affect silicon-based PV manufacturers. Also, we believe that our use of CIGS on a flexible, durable, lightweight, high-tech plastic substrate will allow for integration of our PV modules into a variety of building materials, electronic products, defense, transportation and space applications, as well as other products and applications that may emerge. We believe that the unique attributes of our materials and manufacturing process flow will enable a reduction in the overall system and installation cost-per-watt ratios. For markets that place a high premium on weight, like rooftop, defense, space and near space markets, our materials should provide attractive increases in the power-to-weight ratio, and we believe that our materials have higher power-to-area ratios and voltage-to-area ratios than do competing flexible PV thin-film technologies. These metrics will be critical as we position ourselves to compete in commercial roof-top applications and high value added markets like defense, transportation, space and EIPV solar module applications where weight is a key consideration. We 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 most of our flexible, lightweight, thin-film competitors. At sufficiently large commercial scale production we believe overall grid parity is possible *i.e.,* the point at which the system level cost of our PV-generated power is equal to that of retail power distributed from the electric utility grid in certain geographic markets in the future.

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 fifteen years of concerted research and development activity by our scientists. Our progression also takes into account market conditions, as well as financing options. In keeping with our philosophy, we completed construction of our FAB1 production line in December 2007. In March 2008, we demonstrated initial operating capability (IOC) of the FAB1 production line by initiating production trials as an end-to-end integrated process. Early IOC production trials resulted in average thin-film device efficiencies of 9.5% and small area monolithically integrated module efficiencies of over 7.0%. During 2008 optimization trials resulted in thin-film device efficiencies in the 9.5% to 11.5% range and corresponding module efficiencies in the 7.0% to 9.0% range. The test modules measured approximately 15 centimeters wide by 30 centimeters long and currently serve as our building blocks for both BIPV and portable power products. During 2008 we focused on testing and qualifying our FAB1 production line in anticipation of commencing production.

During the first quarter of 2009, we began limited production of monolithically integrated flexible CIGS modules on our FAB1 production line and continued to provide sample modules to potential customers and development partners to explore integration of our products into new applications. In June 2009, we announced the fabrication of a five meter long CIGS module, which we believe is the largest monolithically interconnected CIGS module ever produced on polyimide and possibly the largest CIGS module ever produced regardless of construction. The CIGS based thin-film material used in the module was manufactured using our unique FAB1 production line. The module was encapsulated during the testing and qualification of equipment to be used in FAB2. Based on internal test and evaluation, this five-meter long module weighed approximately two kilograms and produced 123 watts (under standard test conditions) with an aperture area efficiency of 9.1%. This length is expected to serve as a baseline for the company s development of large area flexible BIPV products with our strategic BIPV partners.

In July 2009, we obtained independent verification by the U.S. Department of Energy s National Renewable Energy Laboratory (NREL) that the modules produced from FAB1 measured 10.4% in conversion efficiency. The modules tested at NREL were approximately 15 centimeters wide by 30 centimeters long and were produced

Table of Contents

on the Company s FAB1 production line. In October 2009, NREL verified our achievement of a manufacturing milestone of 14.0% cell efficiency from FAB1. We also announced a peak efficiency of 11.7% for CIGS modules manufactured at FAB1.

In August 2009, we completed internal qualification testing of a flexible packaging solution which successfully passed the rigorous standard of one thousand (1,000) hours of damp heat testing (85% relative humidity and 85° C temperature) guideline set forth by IEC 61646 standards for performance and long term reliability of thin-film solar modules. In February 2010, our premier (15 centimeters by 30 centimeters) and two meter modules were certified by an independent laboratory on a variety of United States Department of Defense (DOD) rugged standards known as MIL-STD-810G.

Commercialization and Manufacturing Expansion Plan

We intend to be the first company to manufacture in commercial quantities large, roll-format, PV modules 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. In March 2009, Colorado Governor, Bill Ritter, Jr. and other dignitaries joined us in the dedication of our world headquarters and FAB2 building in Thornton, Colorado. The FAB2 building encompasses approximately 145,000 square-feet of office and manufacturing space.

Approximately 70% of the total equipment planned for delivery into FAB2 had been delivered by December 31, 2009. Our current plan is to bring on line approximately 6 to 8 MW of capacity in FAB2 in 2010. We currently expect that non-BIPV markets will constitute the majority of our product shipments in 2010. We now anticipate beginning external certification of BIPV products, as required for market entry, during the second half of 2010 with Technischer Überwachungs-Verein (TÜV) and Underwriters Laboratory (UL). We are evaluating the timing of further expansion based on many factors that include, demand, market conditions, product certification, availability of financing, technical advances and other factors described in this Annual Report.

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 amorphous silicon (a-Si) and cadmium telluride (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 other markets. We also believe that CIGS can achieve higher conversion efficiencies than CdTe.

Our choice of substrate material further differentiates us from other thin-film PV manufacturers. We believe that the use of a flexible, lightweight insulating substrate which is easier to install provides clear advantages for commercial rooftops, higher value added BIPV markets, and other markets where rigid substrates are unsuitable

Table of Contents

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 with monolithic integration, we believe we have the opportunity both to penetrate the BIPV, defense, transportation, EIPV, space and other 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, high efficiency PV thin-film product that positions us to penetrate a wide range of attractive high value added markets such as BIPV, defense, transportation, EIPV, space and other 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 membranes, shingles, siding and facades, metal and composite panels). Commercial rooftops alone are a major segment of the world solar market. The market for electronic components (such as electronic packages, casings, and accessories as well as defense portable power systems and space and near space solar power application solutions) also may prove to be a significant premium market. Relative to our thin-film competitors, we believe that our early mover advantage in thin-film CIGS on plastic technology has placed us on an accelerated path to commercialization with a superior product offering for these strategic market segments.

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 potentially 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 which generate electricity.

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

Table of Contents

than fifteen 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.

Our manufacturing process can be differentiated into two distinct functions, a front end module manufacturing process and a backend packaging process. Our ability to produce finished un-packaged low cost rolls of CIGS material for shipment worldwide to customers for encapsulation and integration into various products enhances our ability to work with partners worldwide.

Markets and Marketing Strategy

Our target markets include BIPV, defense and portable power, transportation, EIPV, and space and near-space.

In BIPV applications, solar modules are incorporated directly into building and construction materials. For BIPV we intend to be the supplier of choice by offering high-performance, lightweight, durable and flexible PV modules that can be integrated directly into building material products such as roofing membranes, roofing shingles, siding, facades, shading devices, parking structures, and metal and composite panels. We anticipate that when integrated with our solar modules, traditional building materials will produce electricity from the integrated PV. Commercial rooftop applications may become an important market for the Company s laminated solar products where we are cooperating with several important strategic partners.

The defense and portable power market is attractive because the value proposition of our products, such as lightweight and power density, provides new solutions into solar blankets and solar tents that can be field deployed for powering the increasing energy requirements for defense applications. By displacing conventional fuels, these customers can reduce cost by utilizing our PV materials where there is no reliably operating electric grid. We intend to continue to develop the existing defense portable power market by developing relationships with key strategic players currently serving this market of existing large defense and governmental contractors. We envision the defense market as one of our early market entry points for our lightweight portable power products.

We began development of the transportation market segment during 2009, and we believe it could be of high value to the Company. With the planned rollout of hybrid electric vehicles (HEV) and electric vehicles (EV) to serve as trucks and busses in urban settings to help reduce fuel consumption costs, we view the market opportunity in transportation as one that is emerging rapidly and could grow significantly in the coming years. A significant requirement for participation in the potential fleet launch for several large transportation manufacturers is lightweight and flexible modules that can easily fit to the contours of vehicles. During 2010 we plan to continue working closely with these manufacturers to develop solutions in which we can populate the roof space on vehicles and become a value added solution to the HEV/EV transportation market.

In EIPV applications, solar modules are either stand alone or are incorporated directly into portable electronic devices or the surface of their accessories. For EIPV we intend to supply relatively high voltages in small spaces for PV integration directly into electronic packages, casings, and accessories in the consumer electronics market.

In space and near space market applications, solar PV modules are incorporated into satellites, aircraft and/or high altitude air ships. In the space and near space markets we believe that our power producing modules are uniquely suited for applications requiring mobility, durability and lightweight. In the space and near space market, we intend to use our durable and lightweight technology to provide both higher value and more capable solutions at cost effective system prices. We hope to develop customers in these markets based upon strategic relationships with large players in those application areas. 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

Table of Contents

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 modules for experimental space qualification tests and then actual flight experiments with governmental 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 because we believe that the space and near-space markets place a premium on performance and offer a correspondingly high-value opportunity for our technology.

Our marketing and distribution strategy is based on the formation of strategic relationships with key partners, including original equipment manufacturers (OEMs), system integrators, value added resellers and distributors, who deal directly with manufacturers, installers, contractors or end-users in our target markets.

We continue to supply our strategic partners with PV modules to support our partners development, testing and certification of new integrated PV products. This 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. We envision that we ultimately will serve as a provider of high value added thin-film solar components to our strategic partners and/or value added resellers or integrators, who will be solely responsible for the marketing, sales and distribution of their integrated building, defense, transportation, electronics or space applications. In so doing, we intend to position ourselves as a leading manufacturer and supplier of value added lightweight, durable, and flexible PV components to these unique markets. By capitalizing on the lightweight features of our thin-film PV products, we believe that we can reduce overall system installation and logistics costs, making our PV solutions more attractive to our strategic partners and channels, and their customers.

Although we intend to target a number of markets concurrently, our emphasis will depend on various factors that include, demand, market conditions, product certification, availability of financing, and technical advances. We believe that we will be well-positioned, for the reasons contained in this Annual Report, to compete in the BIPV market in the longer term after external certification of our product, as we strive to expand production capacity and reduce production costs. We have concluded that the, defense, transportation, EIPV and other niche markets may prove to be more viable targets in the shorter term.

Manufacturing and Manufacturing Strategy

We manufacture our products by affixing a thin CIGS layer to a flexible, plastic substrate, and we use proprietary monolithic integration techniques that enable us to form complete PV modules without engaging in costly back-end assembly of inter-cell connections. Traditional PV manufacturers assemble 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.

During the first quarter of 2009, we began limited production of monolithically integrated flexible CIGS modules from our FAB1 production line. In early 2010 we plan to complete equipment qualification for tools already delivered and we expect to begin production in FAB2 in second quarter 2010.

The timing and amount of our production capacity and actual output will depend on a number of technical factors such as module efficiency, production yield and throughput. Our projections of annual rated production capacity have been and continue to be based on assumptions about these and other factors and we periodically revisit and revise these assumptions to account for realized rates and measurements on our production lines. To date, our realized module efficiencies have exceeded expectations. Anticipated production yield and throughput in FAB2 will depend on successfully ramping up the production equipment.

Table of Contents

We are currently in the process of qualifying the production tools that have been delivered into FAB2. We have additional tools on order that have not been delivered into FAB2. The output of FAB2 in 2010 will depend on product demand, market conditions, technical factors, and the timing of the final qualification and delivery of tools into FAB2, although we currently expect to bring approximately 6MW to 8MW of rated capacity online in 2010. We have begun discussions with our equipment suppliers regarding delaying delivery of certain equipment and may incur additional charges as a result. We intend to continue to optimize our manufacturing processes including throughput, efficiency and yield to improve product performance and reduce manufacturing costs. We also intend to identify and evaluate suitable locations for new production lines for future expansion, domestically and abroad, that we believe will best serve our target markets and customers for future expansion.

Competition

The landscape of thin-film manufacturers encompasses 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. Some of the established c-Si manufacturers have also pursued thin-film technologies, either in conjunction with their crystalline efforts, or more recently as a way to diversify their technology portfolios and insulate themselves from silicon supply shocks.

Two of the largest thin-film PV manufacturers are First Solar, Inc. (First Solar) and Energy Conversion Devices, Inc. (Energy Conversion). First Solar manufactures PV modules by depositing CdTe onto rigid glass plates using monolithic integration techniques similar to ours. Relative to our lightweight, flexible plastic substrates, PV modules using glass substrates are rigid and heavy. First Solar therefore primarily serves commodity module markets such as large scale, grid-connected solar power projects. Energy Conversion manufactures thin-film a-Si cells on flexible metal foil. These cells must be individually assembled in series and parallel to form an integrated module similar to how c-Si products are manufactured. We believe the additional integration steps required to produce such a-Si modules add significant weight and cost and that a-Si does not offer the same efficiency potential as CIGS. Both Energy Conversion and First Solar are established market leaders in the manufacture of thin-film photovoltaic technologies.

Competitors currently developing or selling CIGS-based PV modules include AVANCIS GmbH & Co. KG, Global Solar Energy, Inc., HelioVolt Corporation, MiaSolé, NanoSolar, Inc., Solyndra, Solarion, SoloPower, Inc., Showa Shell and Würth Solar GmbH & Co. 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. These efforts have been initiated both through internal development and the acquisition of external companies or the purchase of turnkey solutions offered by PV equipment providers.

Today the market for PV products is dominated by large manufacturers of c-Si technology. In 2009, the five largest of these manufacturers included: Q-cells SE (Germany), Suntech Power Holdings Co., Ltd. (China), Yingli Green Energy Holding Co. Ltd. (China), Sharp (Japan), and JA Solar Holdings Co., Ltd. (China). We anticipate that while these leaders may continue to dominate the market for several years with their silicon based products, thin-film manufacturers will begin to capture an increasingly larger share of the market. In this regard it is worth noting that in 2009 the largest manufacturer of PV technology was First Solar, Inc., a thin-film manufacturer.

We believe that our modules offer unique advantages. Our modules have no glass, thus have potentially lower installed balance of systems costs. We use monolithic integration which does not require the expensive back end process of wiring cells into modules. In essence we believe that our features combine low cost and flexibility for monolithically integrated lightweight flexible modules suitable for many market sectors with particular application to rooftops.

Market conditions from 2004 through mid-2008 were ideal for new entrants looking to supply photovoltaic technology. The prevalence of capital and manufacturing subsidies led to a significant increase in the number of new companies pursuing crystalline and thin-film technologies. Market dynamics have almost completely

Table of Contents

reversed in conjunction with the current economic downturn. We believe that those companies that do not have a sufficiently differentiated product, particularly those offering low efficiency glass based modules, may find themselves unable to compete with established players and unique technologies.

Research and Development and Intellectual Property

We intend to continue to invest in research and development in order to provide near-term improvements to our manufacturing process and products, as well as to identify next-generation technologies relevant to both our existing and potential new markets. During 2009, 2008 and 2007 we incurred approximately $15.5 million, $10.1 million and $4.8 million, respectively in research and development activities.

Our technology was initially developed at ITN by our founder and core scientific team beginning in 1994. In early 2006, ITN assigned to us certain CIGS PV-specific technologies, and granted to us a perpetual, exclusive, royalty-free, worldwide license to use, in connection with the manufacture, development, marketing and commercialization of CIGS PV to produce solar power, 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. ITN retained the right to conduct research and development activities in connection with PV materials, and we agreed to grant a license back to ITN of improvements to the licensed technologies and intellectual property that are outside of the CIGS PV field.

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

1. Apparatus and method of production of thin-film photovoltaic modules (US Patent No. 7,271,333) (issued September 18, 2007)

2. Flexible High-Voltage Adaptable Current Photovoltaic Modules and Associated Methods (US 11/877,632) (filed October 23, 2007) (co-owned with PermaCity Corporation)

3. Flexible Photovoltaic Array With Integrated Wiring And Control Circuitry, And Associated Methods (US 11/877,625) (filed October 23, 2007) (co-owned with PermaCity Corporation)

4. Array of Monolithically Integrated Thin-film Photovoltaic Cells and Associated Methods (PCT/US08/67772; US 12/143,713) (filed June 20, 2008)

5. Methods for Fabricating p-Type Cadmium Selenide (PCT/US08/70240) (filed July 16, 2008)

6. Hybrid Multi-Junction Photovoltaic Cells and Associated Methods (PCT/US08/70239; US 12/174,626) (filed July 16, 2008)

In addition, we have one unpublished patent application in a related area filed February 5, 2010.

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 NREL under a prime contract with the US Department of Energy. Pursuant to the prime contract, MRI acquired the rights to license certain inventions developed at NREL. We acquired a world-wide, non-exclusive, royalty-bearing, commercial license for specified US and foreign patents. On January 1, 2010, we cancelled the license with MRI because we believe that the patents therein were no longer relevant to our current manufacturing process.

We also have obtained a non-exclusive, royalty-bearing license from the University of Delaware s Institute of Energy Conversion for US Patent Nos. 6,310,281, 6,372,538, 6,537,845 and 6,562,405, as well as US patent application serial No. 60/620,352. The agreement requires us to use commercially reasonable efforts to practice the licensed patents, and we agree not to assert any rights in our improvements to the licensed patents against the University of Delaware and its other licensees and their customers. These patents and patent applications relate to

11

Table of Contents

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.

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 currently acquire all of our high temperature plastic from one supplier, 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. 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 to drive our manufacturing costs down.

Employees

As of February 28, 2010, we had 110 employees of which 6 were executive officers. We expect the number of employees to grow in 2010 as we increase manufacturing capacity.

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 established the Company to commercialize its investment in CIGS PV 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 Ascent a limited amount of administrative and technical services. ITN is wholly owned by Inica, Inc. (Inica). Dr. Mohan Misra, Chairman of our Board of Directors and our Chief Strategy Officer, and an immediate family member own all of the outstanding shares of Inica.

Corporate Information

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

Available Information

We file with the Securities and Exchange Commission (SEC) our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and all amendments to those reports, proxy statements and registration statements. You may read and copy any material we file with the SEC at the SEC s Public Reference Room at 100 F Street, NE, Washington, D.C. 20549. You may also obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. In addition, the SEC maintains an internet site at

Table of Contents

http://www.sec.gov that contains reports, proxy and information statements, and other information regarding issuers, including us, that file electronically. We make available free of charge on or through our website at www.ascentsolar.com our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to these reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act as soon as reasonably practicable after we file these materials with the SEC.

Item 1A. Risk Factors

The risks included here are not exhaustive or exclusive. Other sections of this Annual Report may include additional factors which could adversely affect our business, results of operations and financial performance. We operate in a very competitive and rapidly changing environment. New risk factors emerge from time to time, and it is not possible for management to predict all such risk factors, nor can it assess the impact of all such risk factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements. Given these risks and uncertainties, investors should not place undue reliance on forward-looking statements as a prediction of actual results.

Risks Relating to Our Business

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

We have a limited operating history and have not generated any revenue from operations. Our plans call for expansion of production capacity, but we do not expect to begin large scale production from FAB2 until the second half of 2010. Our ability to achieve our business, commercialization and expansion objectives will depend on a number of factors, including whether:

- we successfully begin commercial production on the equipment installed in FAB2;
- our products are successfully and timely certified for use in our target markets;
- we successfully qualify production tools to achieve the efficiencies, throughput and yield necessary to reach our cost targets as we expand our rated production 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 a level that 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 original equipment manufacturers (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. If we cannot overcome these problems, our business,

results of operations and financial condition could be materially and adversely affected.

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

We incurred a net loss of $20.9 million for the year ended December 31, 2009 and reported an accumulated deficit of $46.0 million as of December 31, 2009. We expect to incur net losses for the foreseeable future. Our

Table of Contents

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.

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

Because we do not plan to commence large scale commercial production on FAB2 until the second half of 2010 and because we believe that our PV modules will need to be certified in order for them to be commercially viable for sales into the BIPV markets, it will be months, if ever, before we record significant BIPV module sales. We expect that it will be some time before we can determine whether our expectations relating to our products and their acceptance into BIPV markets are confirmed. 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.

Our failure to further refine our technology and develop and introduce improved PV products could render our PV modules uncompetitive or obsolete and reduce our net sales and market share.

Our success requires that we invest significant financial resources in research and development to keep pace with technological advances in the solar energy industry. However, research and development activities are inherently uncertain, and we could encounter practical difficulties in commercializing our research results. Our expenditures on research and development may not be sufficient to produce the desired technological advances, or they may not produce corresponding benefits. Our PV modules may be rendered obsolete by the technological advances of our competitors, which could harm our results of operations and adversely impact our net sales and market share.

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 would outstrip 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.

Table of Contents

A significant increase in the supply of silicon feedstock or the 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.

During 2009 there was a significant increase in the supply of silicon feedstock and a significant reduction in the cost of c-Si-based PV modules. This led to pricing pressures on PV modules generally. In the face of such current and future 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.

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 certain target markets, particularly BIPV, they must first be certified by certain government or regulatory organizations, such as Underwriters Laboratory (UL) and Technischer Überwachungs-Verein (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.

Existing regulations and policies and changes to these regulations and policies may present technical, regulatory and economic barriers to the purchase and use of PV products, which may significantly reduce demand for our PV modules.

The market for electricity generation products is heavily influenced by foreign, U.S., state and local government regulations and policies concerning the electric utility industry, as well as policies promulgated by electric utilities. These regulations and policies often relate to electricity pricing and technical interconnection of customer-owned electricity generation. In the United States and in a number of other countries, these regulations and policies have been modified in the past and may be modified again in the future. These regulations and policies could deter end-user purchases of PV products and investment in the research and development of PV technology. For example, without a mandated regulatory exception for PV systems, utility customers are often charged interconnection or standby fees for putting distributed power generation on the electric utility grid. These fees could increase the cost to our end-users of using PV systems and make them less desirable, thereby harming our business, prospects, results of operations and financial condition. In addition, electricity generated by PV systems mostly competes with expensive peak hour electricity, rather than the less expensive average price of electricity. Modifications to the peak hour pricing policies of utilities, such as to a flat rate, would require PV systems to achieve lower prices in order to compete with the price of electricity from other sources.

We anticipate that our PV modules and their use in installations will be subject to oversight and regulation in accordance with national and local ordinances relating to building codes, safety, environmental protection, utility interconnection and metering and related matters. It is difficult to track the requirements of individual states and design equipment to comply with the varying standards. Any new government regulations or utility policies pertaining to PV modules may result in significant additional expenses to us, our business partners and their customers and, as a result, could cause a significant reduction in demand for our PV modules.

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.

Although a significant amount of the production tools for FAB2 have been delivered, our planned expansion of manufacturing capacity depends on the timely delivery of production tools from our equipment suppliers and our

Table of Contents

good working relations with those 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, or that we can preserve good working relationships, especially as we adjust delivery of outstanding orders. If delivery of the remaining 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. In addition, the production tools set for FAB2 are an enhanced version of the FAB1 tools. There are differences in the tools and these differences may cause additional qualification time which could affect the timing of the production from FAB2.

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 or at the volumes projected, 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 our various target market segments, such as portable power applications for defense and governmental agencies or space and near-space high value added solar applications markets as well as the BIPV, transportation, and EIPV markets, and the respective implementations of the right strategic partnerships to enter these various specified markets, could adversely affect our projected sales, growth and revenues.

We intend to sell thin-film PV modules for use in BIPV, defense and portable power systems, transportation, EIPV, and space and near-space solar panel applications. Our marketing and distribution strategy is to form strategic relationships with distributors and value added resellers to provide a foothold in these target markets. 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.

Our planned capacity expansion will require additional capital which we may not be able to obtain on favorable terms, if at all or without dilution to our stockholders.

Our planned capacity expansion will require additional capital. We currently are unable to determine what forms of financing, if any, will be available to us. 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,

Table of Contents

and these newly issued securities may have rights, preferences or privileges senior to those of existing stockholders. 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 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.

In addition, the terms of a loan we obtained from the Colorado Housing and Finance Authority (CHFA) in connection with our purchase and improvement of our Thornton, Colorado facility contain covenants that limit our ability, without the consent of CHFA, to create or incur additional indebtedness (other than obligations created or incurred in the ordinary course of business); merge or consolidate with any other entity; or make loans or advances to our officers, shareholders, directors or employees. The presence of these negative covenants gives CHFA the ability to bar us from engaging in certain transactions in the future that we may determine are necessary or advisable to meet our business objectives, including debt offerings and acquisitions of or by other companies. If CHFA were to withhold its written consent under these or other circumstances, we could be forced to prepay such loans at a premium, which could adversely affect our business, results of operation and financial condition.

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 through economies of scale, 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.

If the U.S. government terminates or delays any of our revenue-generating contracts with it, then the reduced funding could materially and adversely affect our results of operation and financial condition.

To date, we have relied heavily upon contracts with the U.S. government and federal agencies for our revenues and to fund our research and development activities. The U.S. government, as a counterparty to our agreements, generally has the right to unilaterally terminate or modify these contracts. If the U.S. government terminates or delays any of our contracts with it for example, because of changed government priorities, budgets or appropriations then our ability to perform or adequately fund ongoing research and development activities may be adversely affected. Further, such termination or delay could materially and adversely affect our results of operation and financial condition.

The recent financial crisis and ensuing recession could negatively affect our business, results of operations, and financial condition.

The recent financial crisis and ensuing recession affecting the banking system and financial markets has resulted in a tightening in the credit markets; a low level of liquidity in many financial markets; and extreme volatility in credit, fixed income, and equity markets. There could be a number of follow-on effects from the credit crisis on our business, including increased expense or inability to obtain debt financing or raise additional capital;

Table of Contents

insolvency of key suppliers, resulting in product delays; inability of customers to obtain credit to finance purchases of our products; and/or customer insolvencies. The current volatility in the financial markets and continued economic uncertainty increase the risk that the actual amounts realized in the future on our assets will differ significantly from the fair values currently assigned to them.

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 compare 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, value added resellers 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, tidal power and other PV technologies;
- 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.

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 and solar PV products generally.

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

Table of Contents

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 and Energy Conversion, each of which has reported an installed capacity of 250 MW or greater. First Solar manufactures PV modules using CdTe affixed to glass. Energy Conversion 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., Solibro GmbH, Solyndra, 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.

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 30% of all issued and outstanding shares of our common stock. As a result of its large holding of our shares, 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.

Table of Contents

Currency translation risk may negatively affect our net sales, cost of equipment, 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. We continue to be exposed to Japanese Yen-based currency risk. The majority of our equipment contracts in 2008 and 2009 were hedged to protect us against fluctuations in currency exchange rates. However, our future contracts and obligations may be exposed to fluctuations in currency exchange rates; and, as a result, our capital expenditures or other costs may exceed 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. 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 an Administrative Services Agreement in place until December 31, 2010, ITN provides us with administrative services at cost and for technical services at cost plus a fee of 7%. We intend to renew this agreement as and when it expires if we determine that the services are still needed or warranted.

We have relied on these arrangements to conduct a 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. If we are unable to continue, as needed, our arrangement with ITN, it could materially affect our ability to deliver on our plan. However in 2009, we began to hire staff to provide for many of these activities and, as such, we expect to be significantly less dependent on ITN for these services in 2010.

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 Dr. Farhad Moghadam, our President and Chief Executive Officer, Dr. Mohan Misra, our Chief Strategy Officer, and Dr. Joseph Armstrong, our Chief Technology Officer. Our future success also will depend on our ability to attract and retain highly skilled employees, including management, technical and sales personnel. 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.

Table of Contents

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 lifespan 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 lifespan 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.

We may also be subject to warranty or product liability claims against us that are not covered by insurance or are in excess of our available insurance limits. In addition, quality issues can have various other ramifications, including delays in the recognition of revenue, loss of revenue, loss of future sales opportunities, increased costs associated with repairing or replacing products, and a negative impact on our goodwill and reputation. The possibility of future product failures could cause us to incur substantial expenses to repair or replace defective products. Furthermore, widespread product failures may damage our market reputation and reduce our market share and cause sales to decline.

If we are unable to find technologically satisfactory and economically viable packaging solutions for our products for use in target applications or markets, our business and results of operations may be materially and adversely affected.

In order to be used for a particular application or in a particular market, our PV modules must be packaged in a way that satisfies the environmental and usage demands or certification requirements of the application or market. For example, the BIPV market typically requires certain independent certifications, and a demonstration that the product can survive designated adverse weather and other environmental conditions for an anticipated lifecycle of twenty to twenty-five years. We have several types of packaging that are in various states of testing, but until such time as a cost-effective and technologically satisfactory solution is identified and certified by independent industry evaluators, our sales and revenue into those affected markets will be materially limited or negatively affected.

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 force us to seek regulatory exemptions or impact the manufacture and sale of our PV modules and could require us to incur unforeseen environmental-related 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

Table of Contents

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 or our means of enforcing those 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 depends 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 United States 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 U.S. 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 United States 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 application 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

Table of Contents

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 and enforcement 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. Some of our license agreements are not assignable by us without the licensor's consent, which may impair our ability to transfer our business or our assets in connection with a merger, acquisition or otherwise.

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 by us during the performance of government contracts, the U.S. government typically has 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. Some U.S. government funding and/or license agreements require that products made using the subject intellectual property for use or sale in the United States be substantially manufactured in the United States. This may impair our ability to lower manufacturing costs or otherwise take advantage of opportunities to manufacture products outside of the United States.

Our means of protecting our intellectual property rights may not be adequate. Our competitors may: independently develop substantially equivalent proprietary information, products and techniques; or otherwise gain access to our proprietary information or design around our patents or other intellectual property, which could result in significant costs or substantial damages to our business and our inability to manufacture, market or sell our products. Furthermore, policing unauthorized use of our patented or proprietary technology can be difficult and expensive. Litigation may be necessary to enforce our intellectual property rights, protect our trade secrets or determine the validity and scope of the proprietary rights of others. We cannot assure you that the outcome of such potential litigation will be in our favor. Such litigation may be costly and may divert

Table of Contents

management attention and other resources away from our business. An adverse determination in any such litigation will impair our intellectual property rights and may harm our business, prospects and reputation. In addition, we have no insurance coverage against litigation costs and would have to bear all costs arising from such litigation to the extent we are unable to recover them from other parties.

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 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. Even if obtaining a license were feasible, it could be costly and time consuming. We might be forced to obtain additional licenses from our existing licensors in the event that the scope of the intellectual property we have licensed is to narrow to cover our activities, or in the event that the licensor did not have sufficient rights to grant us the license(s) purported granted. Also, some of our licenses may restrict or limit our ability to grant sublicenses and/or assign rights under the licenses to third parties, which may limit our ability to pursue business opportunities.

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;

Table of Contents

- 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.

We currently receive funding for research and development under the Small Business Innovation Research (SBIR) program. In 2009, our revenues generated from performance of these contracts totaled approximately $0.6 million. In order to continue to qualify for this funding, we must, among other things, 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 materially and adversely affected.

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

Table of Contents

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. 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 identifies 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, 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.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

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 facility has been renovated and reconfigured and expanded by approximately 25,000 square feet to accommodate our FAB2 production line. The building purchase, improvements and expansion were partially financed by a $7.5 million loan from the Colorado Housing and Financing Authority. The total cost for the acquisition and renovation of our new manufacturing facility in Thornton, Colorado is approximately $19 million.

Our FAB1 production line is located in Littleton, Colorado. We currently sublease approximately 18,780 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. We intend to extend the sublease for one additional year. At that time we will evaluate whether the FAB1 production line can be relocated

Table of Contents

to our Thornton facility. In 2010, we expect to pay ITN approximately $25,000 per month in rent, plus pass-through expenses such as taxes, insurance, water and utilities.

Item 3. Legal Proceedings

None.

Item 4. (Removed and Reserved)

PART II

Item 5. Market for Registrant s Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Market Information

Our Common Stock is traded on the NASDAQ Global Market under the symbol ASTI. The following table sets forth the high and low sales price information per share for our Common Stock for the last two completed fiscal years.

Price Range of Common Stock

	High	Low
Fiscal 2008		
First Quarter	$ 27.95	$ 8.02
Second Quarter	$ 18.39	$ 10.10
Third Quarter	$ 10.31	$ 5.65
Fourth Quarter	$ 6.80	$ 2.57
Fiscal 2009		
First Quarter	$ 4.64	$ 2.19
Second Quarter	$ 8.83	$ 3.80
Third Quarter	$ 8.58	$ 5.10
Fourth Quarter	$ 6.59	$ 4.37

Holders

As of December 31, 2009, the number of record holders of our Common Stock was 52, and there were no holders of Preferred Stock. The vast majority of our publicly traded shares are held in street name, and we believe that the number of beneficial owners of our stock was approximately 11,400 as of February 18, 2010.

Dividends

The holders of Common Stock are entitled to receive such dividends as may be declared by our Board of Directors. During the years ended December 31, 2009 and 2008, we did not pay any dividends, and we do not expect to declare or pay any dividends in the foreseeable future. Payment of future dividends will be within the discretion of our Board of Directors and will depend on, among other factors, our retained earnings, capital requirements, and operating and financial condition.

Table of Contents

Recent Sales of Unregistered 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. In connection with the private placement, Hydro was granted options to purchase additional shares and warrants.

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 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 23% of total outstanding Class B warrants. Pursuant to a second option that was approved by Ascent s stockholders in June 2007, beginning December 13, 2007, Hydro was entitled to purchase additional shares and Class B warrants up to a maximum of 35% of each class of security.

In March 2008, Hydro acquired an additional 2,341,897 shares of the Company s common stock and 1,689,905 Class B warrants through the exercise of the second option previously granted to Hydro and approved by Ascent s stockholders in June 2007, resulting in Hydro ownership of approximately 35% of each class of security. Gross proceeds to the Company were $28.4 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. As a result of the Company s Secondary Public Offering in May 2008, Hydro s holdings were diluted to approximately 27%.

On October 8, 2008, Hydro acquired an additional 2,421,801 shares of the Company s common stock. The purchase resulted in a return to Hydro s ownership of approximately 35% of the Company s common stock. Gross proceeds to the company from the follow on investment were approximately $15 million, and reflect per share 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. Until June 15, 2009, the second option entitles Hydro to purchase from the Company additional restricted shares of common stock and Class B warrants to maintain ownership of up to 35% of issued and outstanding common stock and Class B warrants.

On September 29, 2009, the Company entered into a securities purchase agreement with Hydro under which the Company agreed to sell, and Hydro agreed to purchase, 769,230 restricted shares of the Company s common stock for approximately $5.0 million in a private placement exempt from the registration under the Securities Act. The restricted shares were sold to Hydro at a per share price of $6.50. The private placement closed on October 6, 2009, at which time the Company and Hydro executed a Registration Rights Agreement, pursuant to which Hydro will be granted demand and piggy-back registration rights.

The sales to Hydro were affected pursuant to Section 4(2) of the Securities Act of 1933 and/or Regulation D promulgated thereunder.

Issuer Purchases of Equity Securities

None.

Stock Performance Graph

The following graph compares the cumulative 41 month return provided shareholders on Ascent Solar Technologies, Inc. common stock relative to the cumulative total returns of the Russell 2000 Index (Market index

Table of Contents

that tracks small cap companies) and the NASDAQ Clean Edge Green Energy U.S. Index (Industry index covering five major sub-sectors; Renewable Electricity Generation, Renewable Fuels, Energy Storage & Conversion, Energy Intelligence and Advanced Energy-Related Materials).

	8/06	12/06	12/07	12/08	12/09
Ascent Solar	$ 100.00	$ 87.35	$ 748.80	$ 113.25	$ 159.64
Russell 2000	$ 100.00	$ 114.77	$ 111.62	$ 72.78	$ 91.13
Nasdaq Clean Edge Green Energy*	$ 100.00	$ 100.00	$ 165.50	$ 56.62	$ 80.59

**First date of index is 2/14/07*

Assumptions:

The graph covers the period from August 10, 2006, our first trading day of our common stock, through December 31, 2009, the last trading day of our most recently completed year.

The graph assumes that $100 was invested in our common stock on August 10, 2006 at the closing price on that date of $3.32 per share, in the Russell 2000 Index and the NASDAQ Clean Edge Energy Index, and that all dividends, if any, were reinvested. No cash dividends have been declared or paid on our common stock.

Stockholder returns over the indicated period should not be considered indicative of future stockholder returns.

Securities Authorized for Issuance under Equity Compensation Plans

2005 Stock Option Plan

Our Option Plan provides for the grant of incentive or non-statutory stock options to our employees, directors and consultants. A total of 2,500,000 shares of common stock are reserved for issuance under the Option Plan. The Board of Directors and our stockholders approved the plan and its amendments.

The Option Plan is administered by the Compensation Committee of our Board of Directors. Subject to the provisions of the Option Plan, the Committee determines who will receive the options, the number of options

Table of Contents

granted, the manner of exercise and the exercise price of the options. The term of incentive stock options granted under the Option Plan may not exceed ten years, or five years for options granted to an optionee owning more than 10% of our 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 our common stock on the date the option is granted. The exercise price of a non-qualified option granted under the Option Plan must be equal to or greater than 85% of the fair market value of the shares of our common stock on the date the option is granted. An incentive stock option granted to an optionee owning more than 10% of our voting stock must have an exercise price equal to or greater than 110% of the fair market value of our common stock on the date the option is granted.

2008 Restricted Stock Plan

The Board of Directors adopted the Company s 2008 Restricted Stock Plan with stockholder approval on July 1, 2008. The Restricted Stock Plan reserves up to 750,000 shares of our common stock for restricted stock awards and restricted stock units to eligible employees, directors and consultants of the Company.

The Restricted Stock Plan is administered by the Compensation Committee of the Board of Directors, which determines the terms of the restricted shares. According to the terms of the Restricted Stock Plan, no individual may be granted, in any fiscal year, more than 200,000 shares. Vesting of shares of restricted stock granted under the Stock Plan may occur over a specified period of time or based upon performance metrics announced at the time of grant.

As of December 31, 2009, there were outstanding options to purchase 986,531 shares of common stock under the 2005 Stock Option Plan and 179,500 unvested restricted stock awards under the 2008 Restricted Stock Plan. The following table sets forth information as of December 31, 2009 relating to all of our equity compensation plans:

	Number of securities to be issued upon exercise of outstanding options, warrants and rights and unvested restricted stock	Weighted-average exercise price of outstanding options, warrants and rights and unvested restricted stock	Number of securities remaining available for future issuance under equity compensation plans
2005 Stock Option Plan approved by security holders (1)	986,531	$ 5.74	1,074,000
2008 Restricted Stock Plan approved by security holders	179,500	$ 6.85	392,975
Equity compensation plans not approved by security holders	220,000	$ 7.27	
Total:	1,386,031		1,466,975

(1) Weighted-average exercise price of outstanding options, warrants and rights and unvested restricted stock includes weighted average price of 220,000 shares to be issued upon exercise of securities not approved by security holders.

Grants outside Existing Equity Plans

Prior to the adoption of the Restricted Stock Plan, the Board of Directors granted 40,000 restricted stock awards in connection with an executive employment agreement. In July 2009, the Board of Directors granted an inducement award (as defined in NASDAQ Rule 5635(c)(4)) made outside of our existing Stock Option Plan for stock options to purchase 200,000 shares.

Table of Contents

Item 6. Selected Financial Data

The following tables include selected financial data for each of our last five years. The statement of operations data for the years ended December 31, 2009, 2008, and 2007 and balance sheet data as at December 31, 2009 and 2008 have been derived from the audited consolidated financial statements appearing elsewhere in this document. The statement of operations data for the years ended December 31, 2006 and 2005 and the balance sheet data as at December 31, 2006 and 2005 have been derived from audited financial statements not appearing in this document. This data should be read in conjunction with the financial statements and notes thereto, with Management s Discussion and Analysis of Financial Condition and Results of Operations in Item 7 and with the other financial data set forth elsewhere in this report. Our historical results of operations are not necessarily indicative of results of operations to be expected for future periods.

Statement of Operations Data	**Year Ended December 31,**				**For the period from inception (October 18, 2005) through**
In thousands except per share data	**2009**	**2008**	**2007**	**2006**	**December 31, 2005**
Research and Development Revenue	$ 1,464	$ 1,500	$ 1,003	$	$
Research and Development Expense	15,508	10,066	4,803	833	
General and Administrative Expense	7,694	5,670	4,126	2,542	1,205
Loss from Operations	(21,738)	(14,236)	(7,926)	(3,375)	(1,205)
Net Loss	(20,923)	(13,215)	(6,503)	(4,181)	(1,207)
Basic and diluted net loss per share	$ (0.93)	$ (0.78)	$ (0.70)	$ (1.45)	$ (1.58)

Balance Sheet Data	**Year Ended December 31,**				
In thousands	**2009**	**2008**	**2007**	**2006**	**2005**
Cash and investments	$ 60,506	$ 87,350	$ 37,701	$ 10,671	$ 28
Working capital	50,229	80,889	37,079	10,412	(350)
Total assets	172,661	154,212	49,817	11,290	196
Long-term obligations	7,095	7,050			
Total stockholders equity	154,315	139,618	48,622	10,901	(209)

Item 7. 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 the notes to those financial statements appearing elsewhere in this Form 10-K. This discussion and analysis contains statements of a forward-looking nature relating to future events or our future financial performance. As a result of many factors, our actual results may differ materially from those anticipated in these forward-looking statements. 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.

Overview

We are a development stage company formed to commercialize flexible photovoltaic (PV) modules using our proprietary technology. For the year ended December 31, 2009, we generated approximately $1.5 million of revenue. Substantially all of our revenue was from government research and development contracts. Our planned principal operations are to commercialize flexible CIGS PV modules. As of December 31, 2009, we had an accumulated deficit of approximately $46.0 million. Currently our FAB2 production line is being installed and commissioned. Under our current business plan, we expect losses to continue until production reaches an annual rated capacity of approximately 30 MW or more. To date, we have financed our operations primarily through public and private equity financings. On October 6, 2009, the Company completed a public offering of 4,615,385 shares of common stock and a private placement to our largest shareholder, Norsk Hydro Produksjon AS (Hydro), of 769,230 shares. The offering price was $6.50 per share resulting in total net proceeds of

Table of Contents

approximately $32.9 million. The proceeds from the stock sales are intended to be utilized to fund equipment purchases for FAB2 in Thornton, Colorado, as well as the funding of negative operating cash flows as we ramp up production levels.

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 fifteen years of concerted research and development activity by our scientists. Our progression also takes into account market conditions, as well as financing options. In keeping with our philosophy, we completed construction of our FAB1 production line in December 2007. In March 2008, we demonstrated IOC of the FAB1 production line by initiating production trials as an end-to-end integrated process. Early IOC production trials resulted in average thin-film device efficiencies of 9.5% and small area monolithically integrated module efficiencies of over 7.0%. During 2008 optimization trials resulted in thin-film device efficiencies in the 9.5% to 11.5% range and corresponding module efficiencies in the 7.0% to 9.0% range. The test modules measured six inches wide by one foot long and currently serve as our building blocks for both BIPV and portable power products.

During 2008 we focused on testing and qualifying our FAB1 production line in anticipation of commencing production. During the first quarter of 2009, we began limited production of monolithically integrated flexible CIGS modules on our FAB1 production line and continued to provide sample modules to potential customers and development partners to explore integration of our products into new applications. In June 2009, we announced the fabrication of a five meter long CIGS module, which we believe is the largest monolithically interconnected CIGS module ever produced on polyimide and possibly the largest CIGS module ever produced regardless of construction. The CIGS based thin-film material used in the module was manufactured using our unique FAB1 production line. The module was encapsulated during the testing and qualification of equipment to be used in FAB2. Based on internal test and evaluation, this five meter long module weighed approximately two kilograms and produced 123 watts (under standard test conditions) with an aperture area efficiency of 9.1%. This length is expected to serve as a baseline for the company s development of large area flexible BIPV products with our strategic BIPV partners.

In July 2009, we obtained independent verification by the U.S. Department of Energy s National Renewable Energy Laboratory (NREL) that the modules produced from FAB1 measured 10.4% in conversion efficiency. The modules tested at NREL were standard 429 square centimeter modules produced on the Company s FAB1 production line. In October 2009, NREL verified our achievement of a manufacturing milestone of 14.0% cell efficiency from FAB1. We also announced a peak efficiency of 11.7% for CIGS modules manufactured at FAB1.

In August 2009, we completed internal qualification testing of a flexible packaging solution which successfully passed the rigorous standard of one thousand (1,000) hours of damp heat testing (85% relative humidity and 85° C temperature) guideline set forth by IEC 61646 standards for performance and long term reliability of thin-film solar modules. In February 2010, our premier (15 centimeters by 30 centimeters) and two meter modules were certified by an independent laboratory on a variety of United States Department of Defense (DOD) rugged standards known as MIL-STD-810G.

Commercialization and Manufacturing Expansion Plan

We intend to be the first company to manufacture in commercial quantities large, roll-format, PV modules 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. In March 2009, Colorado Governor, Bill Ritter, Jr. and other dignitaries joined us in the dedication of our world headquarters and FAB2 building in Thornton, Colorado. The FAB2 building encompasses approximately 145,000 square-feet of office and manufacturing space.

Approximately 70% of the total equipment planned for delivery into FAB2 had been delivered by December 31, 2009. Our current plan is to bring on line approximately 6 to 8 MW of capacity in FAB2 in 2010.

Table of Contents

We currently expect that non-BIPV markets will constitute the majority of our product shipments in 2010. We now anticipate beginning external certification of BIPV products, as required for market entry, during the second half of 2010 with Technischer Überwachungs-Verein (TÜV) and Underwriters Laboratory (UL). We are evaluating the timing of further expansion based on many factors that include, demand, market conditions, product certification, availability of financing, technical advances and other factors described in this Annual Report.

Capital Equipment Expenditures and Manufacturing Costs

Since our formation in October 2005, the majority 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 incrementally expand our rated capacity. We recently applied for funding under the U.S. Department of Energy Loan Guarantee Program for our FAB3 production line with a name plate capacity of 150 MW per year.

We currently expect the capital expenditures for FAB2 to total approximately $102 million to $107 million for manufacturing and development equipment and approximately $19 million for the acquisition and renovation of our new manufacturing facility in Thornton, Colorado. We also expect capital expenditures of approximately $8 million for installation, qualification and other associated pre-operating expenses related to the first FAB2 expansion. As of December 31, 2009, we have made actual cash payments of approximately $74 million for the FAB2 equipment including installation costs and approximately $19 million for the building and renovations which are now substantially complete. We expect to make the remaining payments of approximately $13.8 million on the FAB2 manufacturing equipment already delivered to our FAB2 location in the first half of 2010.

During the first quarter of 2009, we began limited production of monolithically integrated flexible CIGS modules from our FAB1 production line. In early 2010 we plan to complete equipment qualification for tools already delivered and we anticipate beginning production in FAB2 in second quarter 2010.

The timing and amount of our production capacity and actual output will depend on a number of technical factors such as module efficiency, production yield and throughput. Our projections of annual rated production capacity have been and continue to be based on assumptions about these and other factors and we periodically revisit and revise these assumptions to account for realized rates and measurements on our production lines. To date, our realized module efficiencies have exceeded expectations. Anticipated production yield and throughput in FAB2 will depend on successfully ramping up the production equipment.

We are currently in the process of qualifying the production tools that have been delivered into FAB2. We have additional tools on order that have not been delivered into FAB2. The output of FAB2 in 2010 will depend on product demand, market conditions, technical factors, and the timing of the final qualification and delivery of tools into FAB2, although we currently expect to bring approximately 6MW to 8MW of rated capacity online in 2010. We have begun discussions with our equipment suppliers regarding delaying delivery of certain equipment and may incur additional charges as a result. We intend to continue to optimize our manufacturing processes including throughput, efficiency and yield to improve product performance and reduce manufacturing costs. We also intend to identify and evaluate suitable locations for new production lines for future expansion, domestically and abroad, that we believe will best serve our target markets and customers for future expansion.

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 include:

Our ability to achieve desired production yields, throughput, module efficiencies and other performance targets, and to obtain necessary or desired certifications for our PV modules, in a timely manner;

Table of Contents

Our ability to expand production in accordance with our plans set forth above under Commercialization and Manufacturing Expansion Plan ;

Our ability to achieve projected operational performance and cost metrics;

Our ability to consummate strategic relationships with key partners, including original equipment manufacturer (OEM) customers, system integrators, value added resellers and distributors who deal directly with manufacturers and end-users in the BIPV, portable power, EIPV and government/defense 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;

Changes in the supply and demand for PV modules as well as fluctuations in selling prices for PV modules worldwide;

Our ability to manage the planned expansion of our manufacturing facilities, operations and personnel; and

Our ability and the ability of our distributors, suppliers and customers to manage operations and orders during the global financial crisis and financial downturn.

Basis of Presentation: The Company s activities to date have consisted substantially of raising capital, research and development, establishment of our FAB1 production plant and the development of our FAB2 expansion plant. Revenues to date have been generated from the Company s governmental research and development (R&D) contracts and have not been significant. The Company s planned principal operations to commercialize flexible PV modules have not yet commenced. Accordingly, the Company is considered to be in the development stage and has presented its financial statements in accordance with the accounting guidance for development stage companies that consists of additional disclosure of inception to date activity in our Statements of Operations, Statements of Stockholder s Equity and Comprehensive Income (Loss) and Statements of Cash Flows.

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 significant credit risk.

Investments: The Company has classified its investments as available-for-sale. Such investments are carried at fair value, based on quoted market prices with the unrealized holding gains and losses reported as Accumulated other comprehensive income (loss) in the stockholders equity section of the balance sheet. Realized gains and losses on sales of securities are computed using the specific identification method. The Company evaluates declines in market value for potential impairment. If the decline results in a value below cost and is determined to be other than temporary, the investment is written down to its impaired value and a new cost basis is established.

Fair Value estimates: The fair value of an asset or liability is the amount at which it could be exchanged or settled in a current transaction between willing parties. The carrying value for cash and cash equivalents, investments, restricted cash, accounts receivable, accounts payable, accrued property and equipment, accrued expenses and other assets and liabilities approximate their fair values due to their short maturities.

Foreign Currency translation: Bank account balances related to our forward contracts are translated to U.S. dollars utilizing the period end exchange rate. Gains or losses on foreign currency translation adjustments in connection with our forward contracts are recorded within realized gain (loss) on forward contracts in Other Income/expense on the Statement of Operations.

Table of Contents

Revenue Recognition: Revenue to date is from governmental research and development contracts under terms that are cost plus 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.

Patents: At such time as the Company is awarded patents, patent costs are amortized on a straight-line basis over the legal life, or over their estimated useful lives, whichever is shorter. As of December 31, 2009, the Company had $167,030 of net patent costs, of which $24,301 represent costs net of amortization incurred for an awarded patent, and the remaining $142,729 represents costs incurred for patent applications filed. Amortization expense was $5,116 for each year ending December 31, 2009 and 2008 and $1,279 for the year ended December 31, 2007.

Property and Equipment: Property and equipment are recorded at the original cost to the Company. Assets are being depreciated over estimated useful lives of three to ten years using the straight-line method, commencing when the asset is placed in service. Leasehold improvements are depreciated over the shorter of the remainder of the lease 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.

The Company computes depreciation expense using the straight-line method over the estimated useful lives of the assets, as presented in the table below. We amortize leasehold improvements over the shorter of their estimated useful lives or the remaining term of the lease.

	Useful Lives in Years
Buildings	40
Manufacturing machinery and equipment	5 - 10
Furniture, fixtures, computer hardware/software	3 - 7
Leasehold improvements	life of lease

Interest Capitalization: We capitalize interest cost as part of the historical cost acquiring or constructing certain assets during the period of time required to get the asset ready for its intended use. During 2008 and 2009, these assets consisted of property, plant and equipment. We capitalize interest to the extent that expenditures to acquire or construct an asset have occurred and interest cost has been incurred.

Long-lived assets: We analyze our long-lived tangible assets (property and equipment) and definitive-lived intangible assets (patents) for impairment by assessing if the asset cost will be recoverable. Events that might cause impairment would include significant current period operating or cash flow losses associated with the use of a long-lived asset or group of assets combined with a history of such losses, significant changes in the manner of use of assets and significant negative industry or economic trends.

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. The recent financial crisis and downturn and the resulting tightening in the credit markets have made it more difficult to raise additional capital to fulfill our expansion business plan. Additionally, U.S. government contracts may be terminated prior to completion of full funding by the U.S. government.

Table of Contents

Net loss per Common 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, 2009 of approximately 12 million shares, have been omitted from loss per share because they are anti-dilutive. Net Loss per share was the same for both basic and diluted for the periods ended December 31, 2009, 2008 and 2007.

Research and Development Costs: Research and development costs are incurred during the process of researching and developing new products and enhancing our manufacturing processes and consist primarily of compensation and related costs for personnel, materials, supplies and equipment depreciation. We expense these costs as incurred until the resulting product has been completed and tested and is ready for commercial manufacturing. We also incur research and development expenses on our federal government research and development contracts and expense as incurred.

Income Taxes: 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 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 as of the date of enactment. Interest and penalties, if applicable, would be recorded in operations.

The Company 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 (2005-2008) in these jurisdictions. 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 flows. Therefore, no reserves for uncertain income tax positions have been recorded.

Stock Based Compensation: The Company measures and recognizes compensation expense for all share-based payment awards made to employees, officers, directors, and consultants based on estimated fair values. The company estimates 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. Forfeitures are estimated at the time of grant and revised, as 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 the Company uses 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. We estimate the fair value of our restricted stock awards as our stock price on the grant date.

The accounting guidance for stock based compensation 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 accounting for stock based compensation in

Table of Contents

future periods, or if the Company decides to use a different valuation model, the compensation expense that the Company records in the future 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.

Comprehensive income (loss): Our comprehensive income (loss) consists of our net income (loss) and changes in unrealized gains or losses on available-for-sale investments, the impact of which has been excluded from net loss. We present our comprehensive income (loss) in the Statements of Stockholders Equity and Comprehensive Income and (Loss). Our accumulated other comprehensive income (loss) is presented as a component of equity in our Balance Sheets and consists of the cumulative amount of unrealized gains or losses on available-for-sale investments that we have incurred since the inception of our business.

Reclassifications: Certain reclassifications have been made to the 2008 financial information to conform to the 2009 presentation. Such reclassifications had no effect on net loss and are primarily related to reclassifying costs between Research and development costs and General and administrative expenses in the Statements of Operations.

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 June 2009, the Financial Accounting Standard Board (FASB) issued new accounting guidance on the Accounting Standards Codification (Codification) and the hierarchy of generally accepted accounting principles (Accounting Standards Codification (ASC) 105-10). The Codification is now the single source of authoritative generally accepted accounting principles (GAAP) applied by nongovernmental entities and supersedes all existing FASB, American Institute of Certified Public Accountants, Emerging Issues Task Force and related literature. The Codification eliminates the previous U.S. GAAP hierarchy and establishes one level of authoritative GAAP. All other literature is considered non-authoritative. The Codification is not intended to change GAAP but rather reorganize divergent accounting literature into an accessible and user-friendly system. The Codification was effective for financial statements issued for interim and annual periods ending after September 15, 2009. We adopted the Codification as of September 30, 2009 and it impacted our disclosures by eliminating all references to pre-Codification standards, however there was no impact to our financial statements.

Results of Operations

Comparison of the Years Ended December 31, 2009 and 2008

Our activities to date have substantially consisted of raising capital, business and product development, research and development and the development of our FAB1 production line and the construction of our FAB2 production line.

Research and Development Revenues. Our R&D revenues were $1,464,346 for the year ended December 31, 2009 compared to $1,499,729 for the year ended December 31, 2008, a decrease of $35,383. The majority of our R&D revenues during the years ended December 31, 2009 and 2008 were revenues earned on our government R&D contracts.

Research and Development. R&D costs include the costs incurred for pre-production activities on our FAB1 production line and facility and equipment infrastructure costs on our FAB2 production line. R&D costs also include costs related to our governmental contracts. R&D costs were $15,508,209 for the year ended December 31, 2009 compared to $10,066,055 for the year ended December 31, 2008, an increase of $5,442,154. Costs related to pre-production activities increased approximately $5,439,000. The pre-production cost increases

Table of Contents

were comprised of materials and equipment related costs of approximately $1,128,000, depreciation and amortization of approximately $600,000, personnel related costs of approximately $2,361,000, facility related costs of approximately $992,000, and consulting and contract services of approximately $380,000 offset by a decrease in stock compensation expense of approximately $22,000. Governmental R&D expenditures decreased by approximately $40,000 which corresponds to the decrease in research and development revenues of approximately $35,000 during 2009.

General and Administrative. G&A expenses were $7,694,566 for the year ended December 31, 2009 compared to $5,669,746 for the year ended December 31, 2008, an increase of $2,024,820. This increase is comprised of costs associated with increased headcount of approximately $488,000, offset by a $166,000 reduction in bonuses, increases in facilities costs of approximately $467,000 and an increase in stock compensation expense of approximately $1,213,000.

Interest Expense. Interest expense was $0 for the year ended December 31, 2009 compared to $3,438 for the year ended December 31, 2008, a decrease of $3,438. Interest expense of $456,533 and $315,610 for the years ended December 31, 2009 and 2008, respectively was capitalized into our property and equipment. Interest incurred relates to our CHFA loan utilized for our FAB2 production facility expansion in Thornton, Colorado.

Interest Income. Interest income was $531,697 for the year ended December 31, 2009 compared to $2,145,370 for the year ended December 31, 2008, a decrease of $1,613,673. Interest income represents interest on cash and short term investments. The decrease in interest income is due to significantly lower interest rates in 2009 as compared to 2008 as well as a lower average cash balance.

Realized Gain (Loss) on Investments. Realized gains on investments were $59,383 for the year ended December 31, 2009 compared to realized losses of $32,103 for the year ended December 31, 2008, an increase of $91,486. Losses on our investments, primarily corporate securities, comprised the net loss during 2008.

Realized Loss on Forward Contracts and Unrealized Loss on Forward Contracts. For the year ended December 31, 2009 the realized loss on forward contracts was $541,771 compared to $322,430 for the year ended December 31, 2008, an increase of $219,341. For the year ended December 31, 2009, the unrealized gain on forward contracts was $766,403 which offset the unrealized loss of $766,403 for the year ended December 31, 2008 resulting in an increase of $1,532,806 from prior year. As of December 31, 2009 all forward contracts have now been settled resulting in the reversal of all unrealized gains and losses. Although the hedging activity is designed to fix the dollar amount to be expended, the asset purchased is recorded at the spot rate in effect as of the date of the payment to the supplier. The difference between the spot rate and the forward rate has been reported as a loss on forward contract. The forward contract was 100% effective in fixing the amount to be paid to the supplier in dollar terms as of the date the forward contract was entered into.

Table of Contents

Net Loss. Our Net Loss was $20,922,717 for the year ended December 31, 2009 compared to a Net Loss of $13,215,076 for the year ended December 31, 2008, an increase in Net Loss of $7,707,641. The increase in Net Loss can be summarized in variances in significant account activity as follows:

	(Increase) decrease to Net Loss For the Year Ended December 31, 2009
Contract revenues	$ (35,383)
Research and development costs	
Manufacturing R&D	(5,503,311)
Government R&D	39,379
Non-cash stock based compensation	21,778
General and administrative expenses	
Corporate G&A	(811,926)
Non-cash stock based compensation	(1,212,894)
Interest expense	3,438
Interest income	(1,613,673)
Realized Gain on investments	91,486
Realized Loss on forward contract	(219,341)
Unrealized Gain on forward contracts	1,532,806
Increase to Net Loss	$ (7,707,641)

Comparison of the Years Ended December 31, 2008 and 2007

Certain reclassifications have been made to the 2007 financial information to conform to the 2008 presentation. Such reclassifications had no effect on net loss and are primarily related to reclassifying costs between R&D costs and G&A expenses in the Statement of Operations. Our activities to date have substantially consisted of raising capital, business and product development, research and development and the development of our FAB1 production line and the construction of our FAB2 production line.

Research and Development Revenues. Our R&D revenues were $1,499,729 for the year ended December 31, 2008 compared to $1,002,674 for the year ended December 31, 2007 an increase of $497,055. The majority of our R&D revenues during the year ended December 31, 2008 and 2007 were revenues earned on our government R&D contracts. The increase in 2008 primarily relates to two government contracts awarded in June 2008.

Research and Development. R&D costs include the costs incurred for pre-production activities on our FAB1 production line and our FAB2 production line and costs related to our governmental contracts. R&D costs were $10,066,055 for the year ended December 31, 2008 compared to $4,802,538 for the year ended December 31, 2007, an increase of $5,263,517. Costs related to pre-production activities increased $4,654,519. The pre-production cost increases were comprised of materials and equipment related costs of approximately $1,760,000, depreciation and amortization of approximately $1,304,000, personnel related costs of approximately $890,000, facility related costs of approximately $705,000, and stock compensation expense of approximately $122,000. Governmental R&D expenditures increased by $608,998 related to the contracts awarded June 2008.

General and Administrative. G&A expenses were $5,669,746 for the year ended December 31, 2008 compared to $4,126,451 for the year ended December 31, 2007, an increase of $1,543,295. This increase is comprised of costs associated with increased headcount of approximately $719,000, approximately $412,000 for severance related costs, increases in supplies and mailing, trade show, and facilities costs of approximately $387,000 and an increase in stock compensation expense of approximately $25,000.

Table of Contents

Interest Expense. Interest expense was $3,438 for the year ended December 31, 2008 compared to $424 for the year ended December 31, 2007, an increase of $3,014. The increase in Interest expense relates to the amortization of the commitment fee related to our CHFA loan. During 2008, $315,610 of interest incurred on the CHFA loan was capitalized. No interest was capitalized in 2007.

Interest Income. Interest income was $2,145,370 for the year ended December 31, 2008 compared to $1,423,320 for the year ended December 31, 2007, an increase of $722,050. Interest income represents interest on cash and short term investments. The increase in Interest income is due to higher balances of cash and short term investments during 2008 as compared to 2007.

Realized Loss on Investments. Realized losses on investments were $32,103 for the year ended December 31, 2008 compared to $0 for the year ended December 31, 2007, an increase of $32,103. Losses on our investments, primarily corporate securities, comprised the net loss during 2008.

Realized Loss on Forward Contracts and Unrealized Losses on Forward Contracts. For the year ended December 31, 2008, the unrealized loss on forward contracts was $766,403 and the realized loss was $322,430. Although the hedging activity is designed to fix the dollar amount to be expended, the asset purchased is recorded at the spot rate in effect as of the date of the payment to the supplier. The difference between the spot rate and the forward rate has been reported as a loss on forward contract. The forward contract was 100% effective in fixing the amount to be paid to the supplier in dollar terms as of the date the forward contract was entered into.

Net Loss. Our Net Loss was $13,215,076 for the year ended December 31, 2008 compared to a Net Loss of $6,503,419 for the year ended December 31, 2007, an increase in Net Loss of $6,711,657. The increase in Net Loss can be summarized in variances in significant account activity as follows:

	(Increase) decrease to Net Loss For the Year Ended December 31, 2008
Contract revenues	$ 497,055
Research and development costs	
Manufacturing R&D	(4,532,679)
Government R&D	(608,998)
Non-cash stock based compensation	(121,840)
General and administrative expenses	
Corporate G&A	(1,518,615)
Non-cash stock based compensation	(24,680)
Interest expense	(3,014)
Interest income	722,050
Realized Loss on investments	(32,103)
Realized Loss on forward contract	(322,430)
Unrealized Loss on forward contracts	(766,403)
Increase to Net Loss	$ (6,711,657)

Liquidity and Capital Resources

For the year ended December 31, 2009, our cash used in operations was approximately $14.2 million compared to approximately $9.1 million for the year ended December 31, 2008. For the year ended December 31, 2009 approximately $45.6 million was expended for payments on FAB2 tools and renovations to the FAB2 production facility.

Table of Contents

On October 6, 2009 the Company completed a public offering with Barclays Capital Inc. acting as managing underwriter, and a concurrent private placement with its largest shareholder, Hydro, yielding total net proceeds of approximately $32.9 million. As of December 31, 2009, we had approximately $60.5 million in cash and investments. We currently expect the cost of FAB2 will total approximately $102 million to $107 million for manufacturing and development equipment and approximately $19 million for the acquisition of the building and renovation of the FAB2 facility. We also expect capital expenditures of approximately $8 million for installation, qualification and other associated pre-operating expenses related to the expansion. As of December 31, 2009, we have made actual cash payments of approximately $74 million for the FAB2 manufacturing and development equipment, including installation costs and approximately $19 million for the building and renovations that are now substantially complete. We expect to make the remaining payments on the FAB2 manufacturing and development equipment during the first half of 2010 for approximately $13.8 million and the remaining payments subsequent to 2010 subject to market conditions for our product.

During the year ended December 31, 2009, the use of cash for operational expenses averaged approximately $1.2 million per month and was related to pre-manufacturing activities, research and development, business development and general corporate expenses. Our average monthly operational expense for the year ended December 31, 2009 of approximately $1.2 million is net of average monthly R&D revenues from our governmental contracts of approximately $0.1 million. A significant component of our costs for the year ended December 31, 2009 related to the qualification and hiring of additional personnel for operations in our FAB1 production line and installation and qualification of our new FAB2 production line along with company infrastructure costs to support our expansion. We anticipate that our operational expenditures will continue to increase throughout 2010 as we increase the size of our workforce and scale up FAB2. As of December 31, 2009, we had 108 full-time employees of which 75 were manufacturing personnel. We plan to continue to selectively increase our staff during 2010 as required.

We do not expect that our sales revenue in 2010 from the FAB1 and FAB2 production lines will support our operating cash requirements. The Company expects its current cash balance to be sufficient to cover its planned capital and operational expenditures for at least the next 12 months based on currently known factors and limited projected revenues. We expect that we may need to raise additional capital to cover our operating losses and future manufacturing capacity expansion. We currently are pursuing various avenues to obtain additional capital for further expansion and have submitted materials in connection with a loan guarantee program sponsored by the U.S. Department of Energy for our FAB3 production line with name plate capacity of 150 MW per year, and may explore raising money in the equity markets.

On January 9, 2009, we filed a shelf Registration Statement on Form S-3 with the SEC. The SEC declared the registration statement effective on January 16, 2009. The shelf registration was utilized in connection with our public offering of approximately 4.6 million shares that closed on October 6, 2009 with gross proceeds of approximately $30 million. With the shelf registration, we may from time to time sell common stock, preferred stock, warrants or some combination in one or more offerings for up to $120 million, the remaining amount available.

Contractual Obligations

The following table presents our contractual obligations as of December 31, 2009. Our contractual commitments consist of legal commitments requiring us to make fixed or determinable cash payments, regardless of contractual requirements with the vendor to provide future goods or services. We purchase raw materials, services and manufacturing equipment from a variety of vendors. During the normal course of business, in order to manage manufacturing lead times and help assure adequate supply, we enter into agreements with suppliers that either allow us to procure goods and services when we choose or that establish purchase requirements.

Table of Contents

	Payments Due by Year (in thousands)				
	Total	Less Than 1 Year	1-3 Years	4-5 Years	More Than 5 Years
Contractual Obligations					
Long-term debt obligations (1)	$ 12,543	$ 694	$ 2,081	$ 2,081	$ 7,687
Operating lease obligations	150	150			
Purchase obligations (2)	27,179	27,179			
Total	$ 39,872	$ 28,023	$ 2,081	$ 2,081	$ 7,687

(1) Includes estimated cash interest to be paid over the remaining terms of the debt.

(2) Purchase obligations are agreements to purchase goods or services that are enforceable and legally binding on us and that specify all significant terms, including fixed or minimum quantities to be purchased, fixed minimum, or variable price provision and the approximate timing of transactions. A majority of our purchase obligations are conditional purchase obligations that have milestone-based deliverables, such as the Company s acceptance of design requirements and successful installation and commissioning of the equipment. This table reflects conditional purchase obligations due to our equipment suppliers as committed. Currently, we are working with our suppliers to delay equipment deliveries with approximately $18 million in remaining purchase obligations.

Off Balance Sheet Transactions

As of December 31, 2009, we did not have any off balance sheet arrangements as defined in Item 303(a)(4)(ii) of SEC Regulation S-K.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Foreign Currency Exchange Risk

The Company is actively engaged in purchasing manufacturing equipment internationally and is exposed to foreign currency risk. Our objective is to fix the dollar amount of our foreign currency denominated manufacturing equipment purchases at time of order. Although the hedging activity is designed to fix the dollar amount to be expended, the asset purchased is recorded at the spot rate in effect as of the date of the payment to the supplier. The difference between the spot rate and the forward rate has been reported as a loss on forward contract.

In July 2008 and March 2009, the Company entered into fair value hedges utilizing forward contracts designed to match scheduled contractual payments to equipment suppliers which are denominated in Euros and Yen. The total notional value of the Euro forward contracts was 6.4 million with various contract settlement dates beginning September 15, 2008 through July 31, 2009. The total notional value of the Yen forward contracts was ¥521.4 million with contract settlement dates of March and April 2009. All forward contracts have been settled as of December 31, 2009, however, not all payments have been made to our equipment suppliers. Included in cash and cash equivalents is $3,475,341 related to 2,500,605 and $1,471,715 related to ¥133,440,440 held as of December 31, 2009 in our bank account for future payments to our equipment suppliers. Based on our overall currency rate exposure as of December 31, 2009, a near-term 10% appreciation or depreciation in the United States Dollar, relative to our foreign currencies, would have a positive or negative impact of approximately $.5 million on our results of operations.

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 may operate, make sales and buy materials. As a result, we are subject to currency translation risk. Further, changes in exchange rates between foreign currencies and the U.S. dollar could affect our future net sales and cost of sales and could result in exchange losses.

Table of Contents

We currently have unhedged open purchase orders to an equipment supplier denominated in Yen for approximately ¥655.2 million. A 10% appreciation or depreciation in the United States Dollar, relative to this purchase obligation, would have a positive or negative impact of approximately $.8 million on our future cash flows. 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.

Interest Rate Risk

Our exposure to market risks for changes in interest rates relates primarily to our cash equivalents and investment portfolio. As of December 31, 2009, our cash equivalents consisted of money market funds and investments in U.S. government securities, and high quality corporate securities. The primary objective of our investment activities is to preserve principal and provide liquidity on demand, while at the same time maximizing the income we receive from our investments without significantly increasing risk. The direct risk to us associated with fluctuating interest rates is limited to our investment portfolio and we do not believe that a change in interest rates will have a significant impact on our financial position, results of operations or cash flows.

Commodity and Component Risk

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. We are exposed to price risks for the raw materials used in the manufacture of our PV modules. 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.

If delivery of production tools or raw materials are 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.

Credit Risk

We have certain financial and derivative instruments that potentially subject us to credit risk. These consist primarily of cash, cash equivalents, restricted cash, investments, and forward foreign exchange contracts. We are exposed to credit losses in the event of nonperformance by the counter parties to our financial and derivative instruments. We place cash, cash equivalents, investments and forward foreign exchange contracts with various high-quality financial institutions, and exposure is limited at any one institution. We continuously evaluate the credit standing of our counter party financial institutions.

Item 8. Financial Statements and Supplementary Data

The Financial Statements and Selected Quarterly Financial Data required by this item are included in Part IV, Item 15(a)(1) and are presented beginning on Page F-1.

Table of Contents

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

There has been no change of accountants or any disagreement with accountants on any matter of accounting principles or practices, financial statement disclosure, or auditing scope or procedure required to be reported under this Item.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures that are designed to ensure that information required to be disclosed in our reports filed or submitted under the Securities Exchange Act of 1934, as amended (Exchange Act) is recorded, processed, summarized and reported within the time periods specified in Securities and Exchange Commission (SEC) rules and forms. Our disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed in our reports filed under the Exchange Act is accumulated and communicated to management as appropriate to allow timely decisions regarding required disclosures. There are inherent limitations to the effectiveness of any system of disclosure controls and procedures, including the possibility of human error and the circumvention or overriding of the controls and procedures. Accordingly, even effective disclosure controls and procedures can only provide reasonable assurance of achieving their control objectives, and management necessarily is required to use its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Our management conducted an evaluation required by Rules 13a-15 and 15d-15 under the Exchange Act of the effectiveness of our disclosure controls and procedures as defined in Rules 13a-15 and 15d-15 under the Exchange Act as of December 31, 2009. Based on this evaluation, our management concluded that as of December 31, 2009, the design and operation of our disclosure controls and procedures were effective.

Management s Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. Our system of internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles in the United States of America and includes those policies and procedures that:

- pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of our assets;
- provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that our receipts and expenditures are being made only in accordance with authorizations of our management and directors; and
- provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on our financial statements.

Our management conducted an evaluation of the effectiveness of our internal control over financial reporting as of December 31, 2009 based on the framework in Internal Control Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this evaluation, our management concluded that our internal control over financial reporting was effective as of December 31, 2009. Our management reviewed the results of its assessment with the Audit Committee.

Attestation Report of Registered Public Accounting Firm

Hein & Associates LLP, the registered public accounting firm that audited the financial statements included in this Annual Report, has issued an attestation report on the effectiveness of our internal control over financial reporting as of December 31, 2009.

Table of Contents

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders of Ascent Solar Technologies, Inc,

We have audited Ascent Solar Technologies, Inc. s internal control over financial reporting as of December 31, 2009 based on criteria established in *Internal Control Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The Company s management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Managements Report on Internal Controls over financial reporting. Our responsibility is to express an opinion on the company s internal control over financial reporting based on our audit.

We conducted our audit 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 effective internal control over financial reporting was maintained in all material respects. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

A company s internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company s internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company s assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In our opinion, Ascent Solar Technologies, Inc. maintained, in all material respects, effective internal control over financial reporting as of December 31, 2009 based on criteria established in *Internal Control Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the balance sheets as of December 31, 2009 and 2008 and the related statements of operations, stockholders equity and comprehensive income, and cash flows for the years ended December 31, 2009, 2008 and 2007 and for the period from inception (October 18, 2005) through December 31, 2009 of Ascent Solar Technologies, Inc., and our report dated March 15, 2010 expressed an unqualified opinion.

/s/ Hein & Associates LLP

Denver, Colorado

March 15, 2010

Table of Contents

Changes in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) that occurred during the quarter ended December 31, 2009 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

The sections of our 2010 definitive proxy statement entitled Executive Officers and Directors, Board of Directors, Report of the Audit Committee of the Board of Directors and Section 16(a) Beneficial Ownership Reporting Compliance are incorporated herein by reference.

Our executive officers and their ages and positions with the Company as of February 28, 2010, are as follows:

Name	Age	Position
Farhad Moghadam, Ph.D.	56	President and Chief Executive Officer, Director
Gary Gatchell	52	Chief Financial Officer and Secretary
Ashutosh Misra	44	Senior Vice President of Corporate Development
Zane Rakes	51	Vice President of Manufacturing Operations
Rafael Gutierrez	55	Senior Vice President of Sales and Marketing
Mohan S. Misra, Ph.D.	65	Chairman of the Board, Chief Strategy Officer

Farhad Moghadam, Ph.D. became our President and Chief Executive Officer on August 3, 2009, Until 2007 Dr. Moghadam served as Senior Vice President and General Manager at Applied Materials, Inc. (Applied), where, among other things, he led Applied s Thin-Film Product Group, its largest business unit, and was responsible for managing over 1,100 Applied employees in the United States, Europe and Asia. Dr. Moghadam received his B.S. degree in Metallurgical Engineering from the Tehran University of Technology in Iran, and his M.S. and Ph.D. degrees in Materials Science and Engineering from Stanford University.

Gary Gatchell has served as our Chief Financial Officer and Secretary since March 2008. Prior to joining Ascent Solar, Mr. Gatchell served as the Chief Financial Officer of Carrier Access Corporation, a telecommunications equipment provider (Carrier Access). Mr. Gatchell joined Carrier Access, a NASDAQ listed company, in June 2005. Prior to joining Carrier Access, from 1999 to 2004, Mr. Gatchell served as the Chief Financial Officer of Voyant Technologies, Inc., a leading provider of audio conferencing equipment that was acquired by Polycom, Inc., and as an audit manager at KPMG. Mr. Gatchell is a registered Certified Public Accountant and has a Master s degree in Accountancy from the University of Denver. Mr. Gatchell is a member of the AICPA and CSCPA.

Ashutosh Misra is currently serving as our Senior Vice President of Corporate Development and previously served as our Senior Vice President of Operations and General Manager beginning in April 2007. 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.

Table of Contents

Zane Rakes began serving as Vice President of Manufacturing Operations on January 5, 2010. Immediately prior to joining Ascent Solar, Mr. Rakes was Director of Operations for Concentrated Solar Power and Photovoltaics at SCHOTT Solar, Inc. Prior to SCHOTT Solar, Mr. Rakes worked at Intel Corporation for over 15 years holding various manufacturing positions. Most recently Mr. Rakes served as a plant manager for Intel s Colorado Springs, Colo. operations. Mr. Rakes holds a B.S. in Business Administration from the University of Phoenix. Mr. Rakes brings over 16 years experience in high volume manufacturing systems, inventory management, manufacturing automation systems and global supply chain management.

Rafael Gutierrez began serving as our Senior Vice President of Sales and Marketing on September 28, 2009. Mr. Gutierrez joins us from Seagate Technology (Seagate), where he worked for 18 years, most recently as General Manager of Consumer Electronics in Seagate s Consumer Solutions Division. Mr. Gutierrez holds a M.S. in Operations Research and Applied Statistics from the University of Northern Colorado, and a B.A. in Mathematics from Bellevue University.

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. From September 2008 until August 2009, Dr. Misra served as our interim President and Chief Executive Officer. 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 Corporate Development.

Item 11. Executive Compensation

The sections of our 2010 definitive proxy statement entitled Executive Compensation, Board of Directors and Compensation Committee Report are incorporated herein by reference.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The section of our 2010 definitive proxy statement entitled Security Ownership of Certain Beneficial Owners and Management is incorporated herein by reference. See Part I, Item 5, Market for Registrant s Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities, of this Annual Report on Form 10-K for information regarding our securities authorized for issuance under equity compensation plans.

Item 13. Certain Relationships and Related Transactions, and Director Independence

The sections of our 2010 definitive proxy statement entitled Certain Transactions and Board of Directors are incorporated herein by reference.

Item 14. Principal Accounting Fees and Services

The section of our 2010 definitive proxy statement entitled Principal Accounting Fees and Services is incorporated herein by reference.

Table of Contents

PART IV

Item 15. Exhibits, Financial Statement Schedules

(a) The following documents are filed as part of this Annual Report on Form 10-K:

(1) Financial Statements See Index to Financial Statements at Item 8 of the Annual Report on Form 10-K.

(2) Financial Statement Schedules Supplemental schedules are not provided because of the absence of conditions under which they are required or because the required information is given in the financial statements or notes thereto.

(3) Exhibits: See Item 15(b) below.

(b) Exhibits: The exhibits listed on the accompanying Index to Exhibits on this Form 10-K are filed, or incorporated into this Form 10-K by reference.

Table of Contents

ASCENT SOLAR TECHNOLOGIES, INC.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized on the 16th day of March, 2010.

ASCENT SOLAR TECHNOLOGIES

By: /s/ FARHAD MOGHADAM
Farhad Moghadam, Ph.D.

Chief Executive Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the Registrant in the capacities and on the dates indicated.

Signature	Capacities	Date
/s/ FARHAD MOGHADAM Farhad Moghadam, Ph.D.	President & Chief Executive Officer (Principal executive officer)	March 16, 2010
/s/ GARY GATCHELL Gary Gatchell	Chief Financial Officer (Principal financial and accounting officer)	March 16, 2010
/s/ MOHAN MISRA Mohan Misra, Ph.D.	Chairman of the Board of Directors	March 16, 2010
/s/ AMIT KUMAR Amit Kumar, Ph.D.	Director	March 16, 2010
/s/ T.W. FRASER RUSSELL T.W. Fraser Russell, Ph.D.	Director	March 16, 2010
/s/ STANLEY A. GALLERY Stanley A. Gallery	Director	March 16, 2010
/s/ RON ELLER Ron Eller	Director	March 16, 2010
/s/ RICHARD SWANSON Richard Swanson	Director	March 16, 2010
/s/ EINAR GLOMNES Einar Glomnes	Director	March 16, 2010

Table of Contents

Index to Financial Statements

Report of Independent Registered Public Accounting Firm

Financial Statements

	Page
Balance Sheets As of December 31, 2009 and 2008	F-3
Statements of Operations For the years ended December 31, 2009, 2008 and 2007 and for the period from inception (October 18, 2005) through December 31, 2009	F-4
Statements of Stockholders Equity and Comprehensive Income (Loss) For the period from inception (October 18, 2005) through December 31, 2009	F-5
Statements of Cash Flows For the years ended December 31, 2009, 2008, and 2007 and for the period from inception (October 18, 2005) through December 31, 2009	F-7
Notes to Financial Statements	F-8

Table of Contents

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors

Ascent Solar Technologies, Inc.

Thornton, Colorado

We have audited the accompanying balance sheets of Ascent Solar Technologies, Inc. (a Development Stage Company) as of December 31, 2009 and 2008 and the related statements of operations, stockholders equity and comprehensive income (loss) and cash flows for the years ended December 31, 2009, 2008 and 2007 and for the period from inception (October 18, 2005) through December 31, 2009. 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, 2009 and 2008, and the results of its operations and its cash flows for the years ended December 31, 2009, 2008 and 2007 and for the period from inception (October 18, 2005) through December 31, 2009 in conformity with U.S. generally accepted accounting principles.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), Ascent Solar Technologies, Inc. s internal control over financial reporting as of December 31, 2009, based on criteria established in *Internal Control Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated March 15, 2010 expressed an unqualified opinion on the effectiveness of Ascent Solar Technologies, Inc. s internal control over financial reporting.

/s/ ***HEIN*** *& ASSOCIATES LLP*

Denver, Colorado

March 15, 2010

Table of Contents

ASCENT SOLAR TECHNOLOGIES, INC.

(A Development Stage Company)

BALANCE SHEETS

	December 31, 2009	December 31, 2008
ASSETS		
Current Assets:		
Cash and cash equivalents	$ 21,717,215	$ 32,913,304
Restricted cash		2,300,000
Investments	38,788,671	52,136,902
Accounts receivable	133,846	336,236
Related party receivable	21,570	
Prepaid expenses and other current assets	817,629	746,687
Total current assets	61,478,931	88,433,129
Property, Plant and Equipment:	106,726,525	28,446,433
Less accumulated depreciation and amortization	(4,095,762)	(1,521,922)
	102,630,763	26,924,511
Other Assets		
Deposits on manufacturing equipment	8,316,193	38,644,881
Patents, net of amortization of $11,511 and $6,395, respectively	167,030	137,781
Other non-current assets	67,812	71,563
	8,551,035	38,854,225
Total Assets	$ 172,660,729	$ 154,211,865
LIABILITIES AND STOCKHOLDERS EQUITY		
Current Liabilities:		
Accounts payable	$ 692,557	$ 265,415
Related party payables	195,954	263,280
Accrued expenses	2,151,875	946,445
Accrued property, plant and equipment	7,992,479	5,115,163
Current portion of long-term debt	217,463	187,150
Forward contract liabilities		766,403
Total current liabilities	11,250,328	7,543,856
Long-Term Debt	7,095,386	7,049,902
Commitments and Contingencies (Notes 8 & 15)		
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; 26,583,845 and 20,946,382 shares issued and outstanding at December 31, 2009 and December 31, 2008, respectively	2,658	2,095
Additional paid in capital	200,344,727	164,391,585
Deficit accumulated during the development stage	(46,029,358)	(25,106,641)
Accumulated other comprehensive income	(3,012)	331,068
Total stockholders equity	154,315,015	139,618,107
Total Liabilities and Stockholders Equity	$ 172,660,729	$ 154,211,865

The accompanying notes are an integral part of these financial statements.

Table of Contents

ASCENT SOLAR TECHNOLOGIES, INC.

(A Development Stage Company)

STATEMENTS OF OPERATIONS

	For the Years Ended December 31,			For the Period from inception (October 18, 2005) through December 31,
	2009	2008	2007	2009
Research and Development Revenues	$ 1,464,346	$ 1,499,729	$ 1,002,674	$ 3,966,749
Costs and Expenses				
Research and development	15,508,209	10,066,055	4,802,538	31,209,693
General and administrative	7,694,566	5,669,746	4,126,451	21,237,670
Total Costs and Expenses	23,202,775	15,735,801	8,928,989	52,447,363
Loss from Operations	(21,738,429)	(14,236,072)	(7,926,315)	(48,480,614)
Other Income/(Expense)				
Interest expense		(3,438)	(424)	(1,087,293)
Interest income	531,697	2,145,370	1,423,320	4,375,470
Realized gain (loss) on investments	59,383	(32,103)		27,280
Realized loss on forward contracts	(541,771)	(322,430)		(864,201)
Unrealized gain (loss) on forward contracts	766,403	(766,403)		
	815,712	1,020,996	1,422,896	2,451,256
Net Loss	$ (20,922,717)	$ (13,215,076)	$ (6,503,419)	$ (46,029,358)
Net Loss Per Share (Basic and diluted)	$ (0.93)	$ (0.78)	$ (0.70)	
Weighted Average Common Shares Outstanding (Basic and diluted)	22,432,803	16,895,179	9,237,252	

The accompanying notes are an integral part of these financial statements.

Table of Contents

ASCENT SOLAR TECHNOLOGIES, INC.

(A Development Stage Company)

STATEMENTS OF STOCKHOLDERS EQUITY AND COMPREHENSIVE INCOME (LOSS)

For the Period from inception (October 18, 2005) through December 31, 2009

	Common Stock		Preferred Stock		Additional		Accumulated Other	Total
	Shares	Amount	Shares	Amount	Paid-In Capital	Accumulated Deficit	Comprehensive Income	Stockholders 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)
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

The accompanying notes are an integral part of these financial statements.

Table of Contents

ASCENT SOLAR TECHNOLOGIES, INC.

(A Development Stage Company)

STATEMENTS OF STOCKHOLDERS EQUITY AND COMPREHENSIVE INCOME (LOSS)

(Continued)

For the Period from inception (October 18, 2005) through December 31, 2009

	Common Stock		Preferred Stock		Additional		Accumulated Other	Total
	Shares	Amount	Shares	Amount	Paid-In Capital	Accumulated Deficit	Comprehensive Income	Stockholders Equity
Balance, December 31, 2007	11,435,901	$ 1,144		$	$ 60,512,476	$ (11,891,565)	$	$ 48,622,055
Exercise of stock options (1/08 - 12/08 @ $0.10, $2.73, $2.90 & $4.25)	133,137	13			120,520			120,533
Issuance of Restricted Stock	69,846	7			(7)			
Conversion of Class B public warrants at $11.00 per share	98,800	10			1,086,790			1,086,800
Stock based compensation					1,881,399			1,881,399
Proceeds from private placement:								
Common stock (3/08 @ $9.262 & 10/08 @ $6.176)	4,763,698	476			36,647,217			36,647,693
Class B public warrants (3/08 @ $3.954)					6,681,884			6,681,884
Exercise of representative s warrants (1/08 @ $6.60 per unit)	75,000	8			494,992			495,000
Proceeds from shareholder under Section 16(b)					148,109			148,109
Proceeds from secondary public offering (5/08 @ $14.00)	4,370,000	437			61,179,563			61,180,000
Costs of secondary public offering					(4,361,358)			(4,361,358)
Components of comprehensive loss								
Net loss						(13,215,076)		(13,215,076)
Unrealized gain on investments							331,068	331,068
Total comprehensive loss						(13,215,076)	331,068	(12,884,008)
Balance, December 31, 2008	20,946,382	$ 2,095		$	$ 164,391,585	$ (25,106,641)	$ 331,068	$ 139,618,107
Exercise of stock options (1/09 - 12/09 @ $0.10, $2.76 & $4.25)	105,169	10			339,606			339,616
Issuance of Restricted Stock	147,679	15			(15)			
Stock based compensation					2,676,957			2,676,957
Proceeds from private placement:								
Common stock (10/09 @ $6.50)	769,230	77			4,999,918			4,999,995
Proceeds from public offering (10/09 @ $6.50)	4,615,385	461			29,999,542			30,000,003
Costs of public offering					(2,062,866)			(2,062,866)
Components of comprehensive loss								
Net loss						(20,922,717)		(20,922,717)
Unrealized loss on investments							(334,080)	(334,080)
Total comprehensive loss						(20,922,717)	(334,080)	(21,256,797)
Balance, December 31, 2009	26,583,845	$ 2,658		$	$ 200,344,727	$ (46,029,358)	$ (3,012)	$ 154,315,015

The accompanying notes are an integral part of these financial statements.

Table of Contents

ASCENT SOLAR TECHNOLOGIES, INC.

(A Development Stage Company)

STATEMENTS OF CASH FLOWS

	For the Years Ended December 31,			For the Period from inception (October 18, 2005) through December 31, 2009
	2009	2008	2007	
Operating Activities:				
Net loss	$ (20,922,717)	$ (13,215,076)	$ (6,503,419)	$ (46,029,358)
Adjustments to reconcile net loss to cash used in operating activities:				
Depreciation and amortization	2,582,706	1,415,424	102,416	4,114,460
Stock based compensation	2,676,957	1,881,399	1,734,879	7,601,302
Realized loss on forward contract	541,771	322,430		864,201
Unrealized loss (gain) on forward contracts	(766,403)	766,403		
Charge off of deferred financing costs to interest expense				198,565
Charge off of bridge loan discount to interest expense				800,000
Changes in operating assets and liabilities:				
Accounts receivable	202,389	(131,885)	(204,351)	(133,847)
Related party receivables	(21,570)		4,440	(21,570)
Prepaid expenses and other current assets	(70,941)	(397,625)	(233,840)	(817,628)
Accounts payable	427,143	7,885	184,486	692,558
Related party payable	(67,327)	(1,517)	80,843	195,953
Accrued expenses	1,205,431	273,900	540,996	2,151,877
Net cash used in operating activities	(14,212,561)	(9,078,662)	(4,293,550)	(30,383,487)
Investing Activities:				
Purchases of available-for-sale-securities	(143,989,514)	(552,312,954)	(97,116,344)	(839,663,262)
Maturities and sales of available for-sale securities	157,003,665	537,627,120	69,881,344	800,871,579
Purchase of property, plant and equipment	(7,049,400)	(16,522,290)	(1,662,650)	(33,312,953)
Deposits on manufacturing equipment	(38,566,459)	(34,189,688)	(9,350,309)	(74,495,244)
Restricted cash for manufacturing equipment	2,300,000	(2,300,000)		
Patent activity costs	(34,365)	(51,682)	(53,647)	(153,584)
Deposit on Building			(100,000)	(100,000)
Net cash used in investing activities	(30,336,073)	(67,749,494)	(38,401,606)	(146,853,464)
Financing Activities:				
Proceeds from bridge loan financing				1,600,000
Repayment of bridge loan financing				(1,600,000)
Payment of debt financing costs		(75,000)		(273,565)
Payment of equity offering costs	(2,062,866)	(4,361,358)	(75,807)	(8,892,103)
Proceeds from debt	262,948	7,237,052		7,700,000
Repayment of debt	(187,151)			(387,151)
Proceeds from shareholder under Section 16(b)		148,109		148,109
Proceeds from issuance of stock and warrants	35,339,614	106,211,911	42,613,480	200,707,004
Redemption of Class A warrants			(48,128)	(48,128)
Net cash provided by financing activities	33,352,545	109,160,714	42,489,545	198,954,166
Net change in cash and cash equivalents	(11,196,089)	32,332,558	(205,611)	21,717,215
Cash and cash equivalents at beginning of period	32,913,304	580,746	786,357	
Cash and cash equivalents at end of period	$ 21,717,215	$ 32,913,304	$ 580,746	$ 21,717,215
Supplemental Cash Flow Information:				

Cash paid for interest	$	$	$	424	$ 424
Cash paid for income taxes	$	$	$		$
Non-Cash Transactions:					
ITN initial contribution of assets for equity	$	$	$		$ 31,200

The accompanying notes are an integral part of these financial statements.

Table of Contents

ASCENT SOLAR TECHNOLOGIES, INC.

(A Development Stage Company)

NOTES TO FINANCIAL STATEMENTS

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 governmental 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 a limited amount of administrative and technical 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, establishment of our FAB1 production plant and the development of our FAB2 expansion plant. Revenues to date have been generated from the Company s governmental research and development (R&D) contracts and have not been significant. The Company s planned principal operations to commercialize flexible PV modules have not yet commenced. Accordingly, the Company is considered to be in the development stage and has presented its financial statements in accordance with the accounting guidance for development stage companies that consists of additional disclosure of inception to date activity in our Statements of Operations, Statements of Stockholder s Equity and Comprehensive Income (Loss) and Statements of Cash Flows.

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 significant credit risk.

Investments: The Company has classified its investments as available-for-sale. Such investments are carried at fair value, based on quoted market prices with the unrealized holding gains and losses reported as Accumulated other comprehensive income (loss) in the stockholders equity section of the balance sheet. Realized gains and losses on sales of securities are computed using the specific identification method. The Company evaluates declines in market value for potential impairment. If the decline results in a value below cost and is determined to be other than temporary, the investment is written down to its impaired value and a new cost basis is established.

Fair Value estimates: The fair value of an asset or liability is the amount at which it could be exchanged or settled in a current transaction between willing parties. The carrying value for cash and cash equivalents, investments, restricted cash, accounts receivable, accounts payable, accrued property and equipment, accrued expenses and other assets and liabilities approximate their fair values due to their short maturities.

Foreign Currency translation: Bank account balances related to our forward contracts are translated to U.S. dollars utilizing the period end exchange rate. Gains or losses on foreign currency translation adjustments in connection with our forward contracts are recorded within realized gain (loss) on forward contracts in Other Income/expense on the Statement of Operations.

Table of Contents

Revenue Recognition: Revenue to date is from governmental research and development contracts under terms that are cost plus 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.

Patents: At such time as the Company is awarded patents, patent costs are amortized on a straight-line basis over the legal life, or over their estimated useful lives, whichever is shorter. As of December 31, 2009, the Company had $167,030 of net patent costs, of which $24,301 represent costs net of amortization incurred for an awarded patent, and the remaining $142,729 represents costs incurred for patent applications filed. Amortization expense was $5,116 for each year ending December 31, 2009 and 2008 and $1,279 for the year ended December 31, 2007.

Property and Equipment: Property and equipment are recorded at the original cost to the Company. Assets are being depreciated over estimated useful lives of three to ten years using the straight-line method, commencing when the asset is placed in service. Leasehold improvements are depreciated over the shorter of the remainder of the lease 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.

The Company computes depreciation expense using the straight-line method over the estimated useful lives of the assets, as presented in the table below. We amortize leasehold improvements over the shorter of their estimated useful lives or the remaining term of the lease.

	Useful Lives in Years
Buildings	40
Manufacturing machinery and equipment	5 - 10
Furniture, fixtures, computer hardware/software	3 - 7
Leasehold improvements	life of lease

Interest Capitalization: We capitalize interest cost as part of the historical cost acquiring or constructing certain assets during the period of time required to get the asset ready for its intended use. During 2008 and 2009, these assets consisted of property, plant and equipment. We capitalize interest to the extent that expenditures to acquire or construct an asset have occurred and interest cost has been incurred.

Long-lived assets: We analyze our long-lived tangible assets (property and equipment) and definitive-lived intangible assets (patents) for impairment by assessing if the asset cost will be recoverable. Events that might cause impairment would include significant current period operating or cash flow losses associated with the use of a long-lived asset or group of assets combined with a history of such losses, significant changes in the manner of use of assets and significant negative industry or economic trends.

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. The credit markets continue to be depressed and have made it more difficult to raise additional capital to fulfill our expansion business plan. Additionally, U.S. government contracts may be terminated prior to completion of full funding by the U.S. government.

Net loss per Common 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

Table of Contents

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 and unvested restricted stock outstanding as of December 31, 2009 of approximately 12 million shares, have been omitted from loss per share because they are anti-dilutive. Net Loss per share was the same for both basic and diluted for the periods ended December 31, 2009, 2008 and 2007.

Research and Development Costs: Research and development costs are incurred during the process of researching and developing new products and enhancing our manufacturing processes and consist primarily of compensation and related costs for personnel, materials, supplies and equipment depreciation. We expense these costs as incurred until the resulting product has been completed and tested and is ready for commercial manufacturing. We also incur research and development expenses on our federal government research and development contracts and expense as incurred.

Income Taxes: 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 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 as of the date of enactment. Interest and penalties, if applicable, would be recorded in operations.

The Company 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 (2005-2008) in these jurisdictions. 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 flows. Therefore, no reserves for uncertain income tax positions have been recorded.

Stock Based Compensation: The Company measures and recognizes compensation expense for all share-based payment awards made to employees, officers, directors, and consultants based on estimated fair values. The company estimates 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. Forfeitures are estimated at the time of grant and revised, as 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 the Company uses the Black-Scholes option-pricing model (Black-Scholes Model) for option awards. 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. We estimate the fair value of our restricted stock awards as our stock price on the grant date.

The accounting guidance for stock based compensation 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 accounting for stock based compensation in

Table of Contents

future periods, or if the Company decides to use a different valuation model, the compensation expense that the Company records in the future 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.

Comprehensive income (loss): Our comprehensive income (loss) consists of our net income (loss) and changes in unrealized gains or losses on available-for-sale investments, the impact of which has been excluded from net loss. We present our comprehensive income (loss) in the Statements of Stockholders Equity and Comprehensive Income and (Loss). Our accumulated other comprehensive income (loss) is presented as a component of equity in our Balance Sheets and consists of the cumulative amount of unrealized gains or losses on available-for-sale investments that we have incurred since the inception of our business.

Reclassifications: Certain reclassifications have been made to the 2007 financial information to conform to the 2008 presentation. Such reclassifications had no effect on net loss and are primarily related to reclassifying costs between Research and development costs and General and administrative expenses in the Statements of Operations.

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 June 2009, the Financial Accounting Standard Board (FASB) issued new accounting guidance on the Accounting Standards Codification (Codification) and the hierarchy of generally accepted accounting principles (Accounting Standards Codification (ASC) 105-10). The Codification is now the single source of authoritative generally accepted accounting principles (GAAP) applied by nongovernmental entities and supersedes all existing FASB, American Institute of Certified Public Accountants, Emerging Issues Task Force and related literature. The Codification eliminates the previous U.S. GAAP hierarchy and establishes one level of authoritative GAAP. All other literature is considered non-authoritative. The Codification is not intended to change GAAP but rather reorganize divergent accounting literature into an accessible and user-friendly system. The Codification was effective for financial statements issued for interim and annual periods ending after September 15, 2009. We adopted the Codification as of September 30, 2009 and it impacted our disclosures by eliminating all references to pre-Codification standards, however there was no impact to our financial statements.

In January 2010, the FASB issued ASU 2010-06, *Fair Value Measurements and Disclosures (Topic 820) Improving Disclosures about Fair Value Measurements*. This ASU requires new disclosures and clarifies certain existing disclosure requirements about fair value measurements. ASU 2010-06 requires a reporting entity to disclose significant transfers in and out of Level 1 and Level 2 fair value measurements, to describe the reasons for the transfers and to present separately information about purchases, sales, issuances and settlements for fair value measurements using significant unobservable inputs. ASU 2010-06 is effective for interim and annual reporting periods beginning after December 15, 2009, except for the disclosures about purchases, sales, issuances and settlements in the roll forward of activity in Level 3 fair value measurements, which is effective for interim and annual reporting periods beginning after December 15, 2010; early adoption is permitted. We do not expect that the adoption of ASU 2010-06 will have a material impact on our financial position, results of operations or cash flows.

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, 2009, the Company had $60.5 million in cash, restricted cash and investments. We intend to use approximately $13.8 million in 2010 and approximately $25 million in 2011 and 2012 on final payments to our equipment suppliers and shipping and installation costs for our FAB2 production line.

Table of Contents

The Company commenced limited production on its FAB1 production line in the first quarter of 2009. We do not expect that sales revenue from the FAB1 production line will be sufficient to support operations and cash requirements, and it is unlikely that sales revenue will support operating cash requirements until we achieve actual full production capacity on our FAB2 production line.

The Company expects its current cash balance to be sufficient to cover its planned capital and operational expenditures through twelve months based on currently known factors and limited projected revenues.

NOTE 4. FAIR VALUE MEASUREMENTS

Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. Valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. A fair value hierarchy based on three levels of inputs, of which the first two are considered observable and the last unobservable, that may be used to measure fair value which are the following:

Level 1 Quoted prices in active markets for identical assets or liabilities.

Level 2 Inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.

Level 3 Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

The following table represents the Company s fair value hierarchy for its financial assets measured at fair value on a recurring basis and its classification on the balance sheet as of December 31, 2009:

	Level 1	Level 2	Level 3	Total	Cash Equivalents	Investments
Financial Assets:						
U.S. government securities	$	$ 24,290,512	$	$ 24,290,512	$	$ 24,290,512
Money market funds	8,574,037			8,574,037	8,574,037	
Corporate securities		22,397,619		22,397,619	7,899,460	14,498,159
	$ 8,574,037	$ 46,688,131	$	$ 55,262,168	$ 16,473,497	$ 38,788,671

As of the balance sheet date, the Company held securities issued by U.S. government agencies (AAA/Aaa ratings) and AA/Aa2 rated corporate notes. Approximately $46.7 million of these securities are classified as Level 2 because the Company does not believe that it is possible to obtain a firm, up-to-date price of such securities from, for an example, a major exchange; and as a result, the Company relies on its brokerage firm and investment manager to report its fair value of such securities at the end of each month.

NOTE 5. INVESTMENTS

Securities held by the Company as of December 31, 2009 are classified as available-for-sale and consisted of U.S. government securities and corporate securities. Such investments are carried at fair value, based on quoted market prices with the unrealized holding gains and losses reported as Accumulated other comprehensive income in the stockholders equity section of the balance sheet. Realized gains and losses on sales of securities are computed using the specific identification method. The Company evaluates declines in market value for potential impairment. If the decline results in a value below cost and is determined to be other than temporary,

Table of Contents

the investment is written down to its impaired value and a new cost basis is established. A summary of available-for-sale securities as of December 31, 2009 is as follows:

	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
U.S. government securities	$ 24,294,692	$	$ (4,179)	$ 24,290,513
Corporate securities	14,496,991	1,234	(67)	14,498,158
Total	$ 38,791,683	$ 1,234	$ (4,246)	$ 38,788,671

Contractual maturities of our available-for-sale investments as of December 31, 2009 were all one year or less as follows:

	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
One year or less	$ 38,791,683	$ 1,234	$ (4,246)	$ 38,788,671

We recognized a gross realized gain of $59,383 on the sale of available-for-sale investments for the year ended December 31, 2009. The realized gain is included in our Statements of Operations.

We typically invest in highly rated securities with low probabilities of default. Our investment policy specifies minimum investment grade criteria, types of acceptable investments, concentration limitations and duration.

NOTE 6. ACCOUNTS RECEIVABLE

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 to the Company. 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 of future revenues to be provided under the transferred contracts, the key scientists, engineers, and process technicians responsible for deliverables under the transferred contracts were also transferred from ITN to become full-time Ascent employees. In 2007 through 2009, additional R&D contracts were awarded to the Company of approximately $3.8 million.

Accounts receivable consists mainly of billed and unbilled amounts. Management deems all accounts receivable to be collectible.

The following table summarizes components of accounts receivable:

	As of December 31, 2009	2008
Billed receivables	$ 115,474	$ 273,995
Unbilled receivables	18,372	62,241
Total	$ 133,846	$ 336,236

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 period.

Provisional Indirect Cost Rates During 2008 and 2009, 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

Table of Contents

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 years ended December 31, 2007, 2008 or 2009. 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 will not have a material effect on the Company s financial position or results of operations.

Contract Status The Company has authorized but not completed contracts on which work is in process as follows:

	As of December 31, 2009	2008
Total contract price of initial contract awards, including exercised options and approved change orders (modifications)	$ 7,262,134	$ 6,889,991
Completed to date(1)	(5,688,064)	(4,307,951)
Authorized backlog	$ 1,574,070	$ 2,582,040

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

NOTE 7. PROPERTY AND EQUIPMENT

The following table summarizes property and equipment:

	As of December 31, 2009	2008
Building	$ 19,336,263	$
Furniture, fixtures, computer hardware and computer software	1,057,240	715,310
Manufacturing machinery and equipment	27,824,678	12,257,585
Leasehold improvements	840,729	789,342
Net depreciable property, plant and equipment	49,058,910	13,762,237
Building and construction in progress		14,684,196
Manufacturing machinery and equipment in progress	57,667,615	
Property, plant and equipment	106,726,525	28,446,433
Less: Accumulated depreciation and amortization	(4,095,762)	(1,521,922)
Net property, plant and equipment	$ 102,630,763	$ 26,924,511

Approximately $57.7 million (including capitalized interest) of equipment for our FAB2 production line was received in 2009 and is reflected above as Manufacturing machinery and equipment in progress until we qualify the tools. Depreciation and amortization expense for the years ended December 31, 2009, 2008 and 2007 was $2,573,840, $1,406,871 and $102,416, respectively.

We incurred and capitalized interest costs related to our construction loan for our facility expansion into our property and equipment as follows during the year ended December 31, 2009 and 2008.

	As of December 31, 2009	2008

Interest cost incurred	$ 456,534	$ 319,048
Interest cost capitalized	(456,534)	(315,610)
Interest expense, net	$	$ 3,438

Table of Contents

NOTE 8. DEPOSITS ON MANUFACTURING EQUIPMENT

As of December 31, 2009, deposits on manufacturing equipment were $8.3 million related to purchase of equipment not yet delivered for our FAB2 production line. Approximately $1.3 million of the deposits on equipment relates to manufacturing equipment that has or will be received by the company in 2010. The remaining $7.0 million relates to manufacturing equipment deposits for equipment to be delivered in future periods. The equipment purchase agreements are conditional purchase obligations that have milestone-based deliverables, such as the Company s acceptance of design requirements and successful installation and commissioning of the equipment.

NOTE 9. 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 upon 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 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 of $960,000 was recognized as interest expense in the Statements of Operations.

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 Authority (CHFA) (Construction Loan), which provided 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 required payments of interest only at 6.6% on the outstanding balance. On January 29, 2009, the Construction Loan was converted to a permanent loan pursuant to a loan modification agreement between the Company and CHFA (Permanent Loan). The Permanent Loan has an interest rate of 6.6% and the principal will be amortized over a

Table of Contents

period of approximately 19 years and 1 month consistent with a maturity date 20 years after the incurrence of the promissory note and construction loan agreement on February 8, 2008. An additional $75,000 loan commitment fee was paid in 2008 and is reflected on the balance sheet in non-current assets. This fee is being amortized into interest expense over the 20 year life of the Construction and Permanent Loan. We will incur a prepayment penalty if the Permanent Loan is prepaid prior to December 31, 2015 equal to the sum of (i) the present value of the total principal and interest payments due under the Note from the prepayment date to December 31, 2015, and (ii) the present value of the remaining principal balance of the Note that would have been due as of December 31, 2015, less the principal amount of the Note outstanding. Further, pursuant to certain negative covenants contained in the deed of trust associated with the permanent loan, until the Permanent Loan is repaid and all of our secured obligations performed in full, we may not, among other things, without CHFA s prior written consent (which by the terms of the deed of trust is subject to a reasonableness requirement): create or incur additional indebtedness (other than obligations created or incurred in the ordinary course of business); merge or consolidate with any other entity; or make loans or advances to our officers, shareholders, directors or employees.

The outstanding balance of the Loan was $7,312,849 as of December 31, 2009. Our future principal payments are due as follows:

2010	$ 217,463
2011	232,257
2012	248,059
2013	264,935
2013	282,960
Thereafter	6,067,175
	$ 7,312,849

NOTE 10. DERIVATIVE FINANCIAL INSTRUMENTS

The Company is actively engaged in purchasing manufacturing equipment internationally and is exposed to foreign currency risk. In July 2008 and March 2009, the Company entered into fair value hedges utilizing forward contracts designed to match scheduled contractual payments to equipment suppliers which are denominated in Euros and Yen. The total notional value of the Euro forward contracts was 6.4 million with various contract settlement dates beginning September 15, 2008 through July 31, 2009. The total notional value of the Yen forward contracts was ¥521.4 million with contract settlement dates of March and April 2009. The Company elected not to use hedge accounting and accordingly, the unrealized gain and loss on each forward contract was determined at each balance sheet date based upon current market rates and is reported as an Unrealized gain or loss on forward contracts in the Statements of Operations. Upon settlement of the forward contracts, a realized gain or loss is reported in the Statements of Operations as a Realized gain or (loss) on forward contracts. For the years ended December 31, 2009 and 2008, the unrealized gain on these forward contracts was $766,403 and the unrealized loss was $766,403, respectively, netting to zero as all forward contracts have been settled. For the years ended December 31, 2009 and 2008 the realized loss was $541,771 and $322,430, respectively.

Although the hedging activity is designed to fix the dollar amount to be expended, the asset purchased is recorded at the spot rate in effect as of the date of the payment to the supplier. The difference between the spot rate and the forward rate has been reported as a loss on forward contract. During 2009, forward contracts for delivery of 4,800,000 and ¥521,410,000 were settled. Included in cash and cash equivalents is $3,475,341 related to 2,500,605 and $1,471,715 related to ¥133,440,440 held as of December 31, 2009 in our bank account for future payments to our equipment suppliers. Period end foreign currency translation adjustments related to the Euros and Yen on deposit in our bank account are reflected as a Realized gain or (loss) on forward contracts in our Statements of Operations. In connection with the forward contracts, the Company established a $2.3 million

Table of Contents

deposit account with the bank holding the forward contracts. During the fourth quarter 2009, the forward contracts settled and the restricted cash was released and transferred into our operational cash account. Derivative financial instruments are not used for speculative or trading purposes.

NOTE 11. STOCKHOLDERS EQUITY

The Company s 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. Each share of common stock has the right to one vote. 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 reflects 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, 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.

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, 2009, 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 years ended December 31, 2008 and 2007, 98,800 and 11,000 Class B warrants, respectively were exercised resulting in proceeds to the Company of approximately $1,086,800 and $121,000 respectively. As of December 31, 2009, 10,502,583 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

Table of Contents

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 300,000 Class B warrants for total proceeds to the Company of $1.98 million. During the year ended December 31, 2008 an additional 37,500 units have been exercised, as have the 37,500 underlying Class A warrants resulting in an issuance of 75,000 shares of common stock and 75,000 Class B warrants for total proceeds to the Company of $495,000. 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, 2009, 112,500 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 Sheets. In connection with the private placement, Hydro was granted options to purchase additional shares and warrants.

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 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 23% of total outstanding Class B warrants. Pursuant to a second option that was approved by Ascent s stockholders in June 2007, beginning December 13, 2007, Hydro was entitled to purchase additional shares and Class B warrants up to a maximum of 35% of each class of security.

In March 2008, Hydro acquired an additional 2,341,897 shares of the Company s common stock and 1,689,905 Class B warrants through the exercise of the second option previously granted to Hydro and approved by Ascent s stockholders in June 2007, resulting in Hydro ownership of approximately 35% of each class of security. Gross proceeds to the Company were $28.4 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. As a result of the Company s Secondary Public Offering in May 2008, Hydro s holdings were diluted to approximately 27%.

On October 8, 2008, Hydro acquired an additional 2,421,801 shares of the Company s common stock. The purchase resulted in a return to Hydro s ownership of approximately 35% of the Company s common stock. Gross proceeds to the company from the follow on investment were approximately $15 million, and reflect per share 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. Until June 15, 2009, the second option entitles Hydro to purchase from the Company additional restricted shares of common stock and Class B warrants to maintain ownership of up to 35% of issued and outstanding common stock and Class B warrants.

On September 29, 2009, the Company entered into a securities purchase agreement with Hydro under which the Company agreed to sell, and Hydro agreed to purchase, 769,230 restricted shares of the Company s common

Table of Contents

stock for approximately $5.0 million in a private placement exempt from registration under the Securities Act. The restricted shares were sold to Hydro at a per share price equal to the October 1, 2009 Public Offering price of $6.50. The private placement closed on October 6, 2009 concurrently with the Public Offering, at which time the Company and Hydro executed a Registration Rights Agreement, pursuant to which Hydro will be granted demand and piggy-back registration rights.

Secondary Public Offerings: On May 15, 2008, the SEC declared effective the Company s Registration Statement on Form S-3 (Reg. No. 333-149740), and the Company completed its Secondary Public Offering of 4,370,000 shares of common stock, which included 570,000 shares issued upon the underwriter s exercise of their overallotment in full. The offering price of $14.00 per share resulted in proceeds of $61,180,000. After deducting underwriting discounts and commissions and offering expenses of approximately $4,361,000, net proceeds to the Company were approximately $56,819,000. JP Morgan was the managing underwriter of the Secondary Public Offering.

On October 1, 2009, the Company entered into an underwriting agreement with Barclays Capital Inc. providing for the sale in a firm commitment offering of 4,615,385 shares of the Company s common stock at a price to the public of $6.50 per share (Public Offering). The offer and sale of the shares are registered under the Securities Act of 1933, as amended, pursuant to the Company s Registration Statement on Form S-3 (File No. 333-156665), which became effective with the SEC on January 16, 2009. The offering closed on October 6, 2009 with net proceeds of approximately $27.9 million.

Other Proceeds: During the three months ended March 31, 2008, the Company received proceeds from a greater than 10% shareholder equal to the profits realized on the sale of the Company s stock that was purchased and sold within a six month or less time frame. Under Section 16(b) of the Securities and Exchange Act, the profit realized from this transaction by the greater than 10% shareholder must be disgorged to the Company under certain circumstances. The Company has recorded the proceeds received on this transaction of $148,109 as Additional paid in capital and is reflected on the Statements of Stockholders Equity.

As of December 31, 2009, the Company had 26,583,843 shares of common stock and no shares of preferred stock outstanding. We have not declared or paid any dividends through December 31, 2009.

NOTE 12. STOCK BASED COMPENSATION

Stock Option Plan: The Company s 2005 Stock Option Plan, as amended (Stock Option Plan) provides for the grant of incentive or non-statutory stock options to the Company s employees, directors and consultants. Upon recommendation of the Board of directors, the stockholders approved an increase in the total shares of common stock reserved for issuance under the Stock Option Plan from 1,000,000 to 1,500,000 on July 1, 2008 and from 1,500,000 to 2,500,000 on June 30, 2009.

Restricted Stock Plan: The Board of Directors adopted the Company s 2008 Restricted Stock Plan, and it was approved by the stockholders on July 1, 2008. The Restricted Stock Plan reserves up to 750,000 shares of our common stock for restricted stock awards and restricted stock units to eligible employees, directors and consultants of the Company.

The Stock Option Plan and the Restricted Stock Plan are administered by the Compensation Committee of the Board of Directors, which determines the terms of the options and shares, including the exercise price, expiration date, vesting schedule and number of shares. Equity Compensation awards to executive officers and directors are also subject to approval by the Board of Directors. The term of any incentive stock option granted under the Stock 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

Table of Contents

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. According to the terms of the Restricted Stock Plan, no individual may be granted, in any fiscal year, more than 200,000 shares. Vesting of shares of restricted stock granted under the Restricted Stock Plan may occur over a specified period of time or based upon performance metrics.

Grants outside Existing Equity Plans: Prior to the adoption of the Restricted Stock Plan, the Board of directors granted 40,000 restricted stock awards in connection with an executive employment agreement. In July 2009, the Board of directors granted an inducement award (as defined in NASDAQ Rule 5635(c) (4)) made outside of our existing Stock Option Plan for 200,000 stock options.

Share Based Compensation: We measure share-based compensation cost at the grant date based on the fair value of the award and recognize this cost as an expense over the grant recipients requisite service periods for all awards made to employees, officers, directors and consultants.

The share-base compensation expense that we recognized in our statements of operations for the years ended December 31, 2009, 2008 and 2007 was as follows:

	For the years ended December 31,		
	2009	2008	2007
Share-based compensation cost included in:			
Research and development	$ 764,062	$ 785,840	$ 664,001
Selling, general and administrative	2,308,453	1,095,559	1,070,878
Total share-based compensation cost	$ 3,072,515	$ 1,881,399	$ 1,734,879

The following table presents our share-based compensation expense by type of award for the years ended December 31, 2009, 2008 and 2007:

	For the years ended December 31,		
	2009	2008	2007
Type of Award:			
Stock Options	$ 1,366,969	$ 1,489,839	$ 1,734,879
Restricted Stock Units and Awards	1,705,546	391,560	
Total share-based compensation cost	$ 3,072,515	$ 1,881,399	$ 1,734,879

Stock Options:

The Company recognized share-based compensation expense for stock options of $1,366,969 ($1,276,661 to officers, directors and employees, and $90,308 to outside providers) for the year ended December 31, 2009 related to stock option awards ultimately expected to vest and reduced for estimated forfeitures . The weighted average estimated fair value of employee stock options granted for the years ended December 31, 2009, 2008 and 2007 was $6.17, $3.12 and $9.90 per share respectively. Fair value was calculated using the Black-Scholes Model with the following weighted average assumptions:

	For the Years Ended December 31,		
	2009	2008	2007
Expected volatility	103.9-108.9%	103.4-108.9%	83.7%
Risk free interest rate	1.9-2.7%	1.5-3.3%	3.3-3.6%
Expected dividends			
Expected life (in years)	5.7-6.5	5.1-6.1	6.4

Table of Contents

For the years ended December 31, 2009 and 2008, the Company based its estimate of expected volatility, expected life and expected forfeiture rate on historical company experience. For the year ended December 31, 2007, the Company based its estimate of expected volatility on disclosures made by peers, the expected life was calculated using the simplified method and 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 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 ASC Topic 718 may differ significantly from what the Company recorded in the current period, as the Company builds company-specific performance history.

As of December 31, 2009, total compensation cost related to non-vested stock options not yet recognized was approximately $2,266,000 ($2,224,000 to officers, directors and employees, and $42,000 to outside providers), which is expected to be recognized over a weighted average period of approximately 3.1 years. As of December 31, 2009, approximately 1,144,000 shares were expected to vest in the future at a weighted average exercise price of $5.72. The following schedule summarizes our stock option activity for grants made within the 2005 Stock Option Plan and outside the 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 December 31, 2006	638	$ 1.83		
Granted	232	11.52		
Exercised	(170)	(2.04)		$ 1,882,882
Canceled	(13)	(1.03)		
Outstanding at December 31, 2007	687	$ 5.07	4.82	$ 13,595,562
Granted	577	3.91		
Exercised	(133)	(0.91)		$ 1,684,874
Canceled	(39)	(5.80)		
Outstanding at December 31, 2008	1,092	$ 4.94	8.89	$ 894,198
Granted	380	7.59		
Exercised	(105)	(3.23)		$ 305,730
Canceled	(180)	(6.21)		
Outstanding at December 31, 2009	1,187	$ 5.74	8.41	$ 1,847,222
Exercisable at December 31, 2009	552	$ 5.94	7.44	$ 1,199,414

As of December 31, 2009, approximately 1,074,000 shares remained available for future grants under the Option Plan.

Table of Contents

Restricted Stock:

In addition to the stock options discussed above, the Company recognized share-based compensation expense related to restricted stock grants of $1,705,546 for the year ended December 31, 2009. We estimate the fair value of our restricted stock awards as our stock price on the grant date. The following table summarizes Non-vested restricted stock and the related activity as of and for the year ended December 31, 2009 (shares in thousands):

	Shares	Weighted Average Grant-Date Fair-Value
Non-vested at January 1, 2008		
Granted	70	$ 12.70
Vested	(27)	9.88
Forfeited		
Non-vested at December 31, 2008	43	$ 14.51
Granted	390	$ 5.83
Vested	(170)	7.07
Forfeited	(63)	5.65
Non-vested at December 31, 2009	200	$ 6.85

Total unrecognized share-based compensation expense from unvested restricted stock as of December 31, 2009 was approximately $1,066,000 which is expected to be recognized over a weighted average period of approximately 2.3 years. As of December 31, 2009, approximately 393,000 shares remained available for future grants under the Restricted Stock Plan.

NOTE 13: INCOME TAXES

The Company records income 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 carryforwards.

At December 31, 2009, the Company has approximately $36,600,000 in net operating loss carryforwards that will expire beginning in 2025. Approximately $2,100,000 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 and vested restricted stock. 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. There were no significant ownership changes in 2009 that would affect utilization of the Company s net operating losses.

Table of Contents

Deferred income taxes reflect an estimate of the cumulative temporary differences recognized for financial reporting purposes from that recognized for income tax reporting purposes. At December 31, 2009 and 2008, the components of these temporary differences and the deferred tax asset were as follows:

	2009	2008
Deferred Tax Asset		
Current:		
Unrealized loss on forward contracts	$ 0	$ 291,000
Accrued Expenses	62,000	59,000
Total Current	62,000	350,000
Non-current:		
Stock Based Compensation-Stock Options and Restricted Stock	710,000	629,000
Tax effect of NOL carryforward	13,095,000	5,234,000
Depreciation	336,000	209,000
Start-up costs	439,000	664,000
Capitalized manufacturing costs & Property taxes on PPE	1,353,000	1,332,000
Total Non-current	15,933,000	8,068,000
Net deferred tax asset	15,995,000	8,418,000
Less valuation allowance	(15,995,000)	(8,418,000)
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 $15,995,000 reflected above is an increase of $7,577,000 from the valuation allowance reflected as of December 31, 2008 of $8,418,000. The Company s effective tax rate for the years ending December 31, 2009 and 2008 differs from the statutory rate due to the following (expressed as a percentage of pre-tax income):

	2009	2008
Federal statutory rate	(35)%	(35)%
State statutory rate	(3)%	(3)%
Permanent tax differences	1%	1%
Other	1%	1%
Increase in valuation allowance	36%	36%
	0%	0%

NOTE 14. RELATED PARTY TRANSACTIONS

Included in General and Administrative Expenses for the years ended December 31, 2009, 2008 and 2007 are $815,196, $1,270,720 and $937,212 respectively, of expenditures to ITN for facility sublease costs and administrative support expenses. Included in Research and development expense for the years ended December 31, 2009, 2008 and 2007 are $1,861,609, $1,585,519 and $908,005 respectively, of expenditures to ITN for supporting research and development and manufacturing activity, including charges for the use of research and development equipment. Related party payables of $195,954 and $263,280 as of December 31, 2009 and 2008 respectively represent costs remaining to be paid to ITN for these expenditures. Related party receivables of $21,570 as of December 31, 2009 represent pass-through costs for employee benefit insurance.

Table of Contents

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 on government contracts.

Included in Property, plant and equipment and Deposits on manufacturing equipment as of December 31, 2009 and 2008 are $2,296,118 and $1,590,366, respectively, of costs to ITN for the construction of manufacturing and research and development equipment and installation labor costs for our FAB1 and FAB2 production lines.

NOTE 15. COMMITMENTS

Sublease Agreement: On November 1, 2005, the Company entered into a sublease agreement with ITN, an approximate five percent stockholder of the Company, to lease office space in Littleton, Colorado. Future minimum payments due under the sublease as of December 31, 2009 are as follows:

Year ending December 31:	
2010	$ 150,240

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, 2009, 2008 and 2007 was $232,359, $232,380 and $217,214, 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. As of January 1, 2010, the Company has cancelled one of the non-exclusive patent license agreements.

NOTE 16. 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 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 for all employees hired before January 1, 2010. For employees hired after January 1, 2010, matching contributions vest over a three year period, one-third per year.

NOTE 17. SUBSEQUENT EVENTS

On January 7, 2010, the Company and ITN entered into an equipment purchase agreement whereby the Company purchased six research and development vacuum and deposition chambers for $1,100,000 from ITN. Payments are to be made in three installments beginning January 15, 2010 of $350,000, January 15, 2011 of $350,000 and on January 15, 2012 of $400,000. Due to the Company s purchase of a majority of the research and development equipment and the Company s hiring of staff through-out 2009 to provide for much of the ITN administrative and technical support activities, we anticipate that ITN related party activity in 2010 will be significantly reduced.

Table of Contents

NOTE 18. SELECTED QUARTERLY FINANCIAL DATA (unaudited)

The following table presents selected unaudited statement of operations information for each of the quarters in the years ended December 31, 2009 and 2008 (in thousands, except per share data):

Selected statement of operations information:

	For the Quarter Ended			
Year Ended December 31, 2009	**December 31**	**September 30**	**June 30**	**March 31**
Research and Development Revenue	$ 268	$ 417	$ 263	$ 516
Research and Development Expense	5,089	3,859	3,364	3,196
General and Administrative Expense	1,972	2,519	1,623	1,581
Loss from Operations	(6,793)	(5,961)	(4,724)	(4,261)
Net Loss	(6,710)	(5,270)	(4,530)	(4,413)
Basic and diluted loss per share	$ (0.25)	$ (0.25)	$ (0.22)	$ (0.21)

Selected balance sheet information:

	For the Quarter Ended			
Year Ended December 31, 2009	**December 31**	**September 30**	**June 30**	**March 31**
Current Assets	$ 61,479	$ 37,536	$ 49,255	$ 72,372
Total Assets	172,661	140,101	144,499	150,386
Current Liabilities	11,250	5,513	5,307	7,704
Working Capital	50,229	32,023	43,948	64,668
Long Term Obligations	7,095	7,151	7,206	7,260
Stockholders Equity	154,315	127,431	131,978	135,411

Selected statement of operations information:

	For the Quarter Ended			
Year Ended December 31, 2008	**December 31**	**September 30**	**June 30**	**March 31**
Research and Development Revenue	$ 430	$ 422	$ 344	$ 304
Research and Development Expense	3,545	2,609	2,227	1,685
General and Administrative Expense	758	2,284	1,298	1,330
Loss from Operations	(3,873)	(4,471)	(3,181)	(2,711)
Net Loss	(3,059)	(4,766)	(2,679)	(2,711)
Basic and diluted loss per share	$ (0.16)	$ (0.26)	$ (0.16)	$ (0.20)

Selected balance sheet information:

	For the Quarter Ended			
Year Ended December 31, 2008	**December 31**	**September 30**	**June 30**	**March 31**
Current Assets	$ 88,433	$ 94,916	$ 114,571	$ 64,329
Total Assets	154,212	144,751	136,517	82,301
Current Liabilities	7,544	11,946	1,397	1,582
Working Capital	80,889	82,970	113,174	62,747
Long Term Obligations	7,050	5,862	4,085	4,110
Stockholders Equity	139,618	126,929	131,019	76,590

Table of Contents

INDEX TO EXHIBITS

Set forth below is a list of exhibits that are being filed or incorporated by reference into this Annual Report on Form 10-K:

Exhibit No.	Description
3.1	Registrant s Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.2 to our Registration Statement on Form SB-2 filed January 23, 2006 (Reg. No. 333-131216), as amended)
3.2	Registrant s Amended and Restated Bylaws (incorporated by reference to Exhibit 3.1 to our current report on Form 8-K filed April 17, 2007)
3.3	First Amendment to Second Amended and Restated Bylaws (incorporated by reference to Exhibit 3.3 to our Quarterly Report on Form 10-Q filed November 5, 2009)
3.4	Second Amended and Restated Bylaws (incorporated by reference to Exhibit 3.2 to our current report on form 8-K filed February 17, 2009)
4.1	Form of Common Stock Certificate (incorporated by reference to Exhibit 4.1 to our Registration Statement on Form SB-2 filed January 23, 2006 (Reg. No. 333-131216), as amended)
4.2	Form of Class B Warrant (incorporated by reference to Exhibit 4.3 to our Registration Statement on Form SB-2 filed January 23, 2006 (Reg. No. 333-131216), as amended)
4.3	Form of Warrant Agreement between the Registrant and Computershare Trust Company, Inc. (incorporated by reference to Exhibit 4.5 to our Registration Statement on Form SB-2 filed July 10, 2006 (Reg. No. 333-131216), as amended)
4.4	Form of Representative s Purchase Warrant (incorporated by reference to Exhibit 4.6 to our Registration Statement on Form SB-2 filed July 10, 2006 (Reg. No 333-131216), as amended)
10.1	Employment Agreement with Mohan S. Misra (incorporated by reference to Exhibit 10.1 to our current report on Form 8-K filed April 27, 2007)
10.2	Employment Agreement with Ashutosh Misra (incorporated by reference to Exhibit 10.2 to our current report on Form 8-K filed April 27, 2007)
10.3	Securities Purchase Agreement by and between the Registrant and ITN Energy Systems, Inc. (incorporated by reference to Exhibit 10.1 to our Registration Statement on Form SB-2 filed January 23, 2006 (Reg. No. 333-131216), as amended)[CTR]
10.4	Invention and Trade Secret Assignment Agreement and between the Registrant and ITN Energy Systems, Inc. (incorporated by reference to Exhibit 10.2 to our Registration Statement on Form SB-2 filed January 23, 2006 (Reg. No. 333-131216), as amended)[CTR]
10.5	Patent Application Assignment Agreement by and between the Registrant and ITN Energy Systems, Inc. (incorporated by reference to Exhibit 10.3 to our Registration Statement on Form SB-2 filed January 23, 2006 (Reg. No. 333-131216), as amended)
10.6	License Agreement by and between the Registrant and ITN Energy Systems, Inc. (incorporated by reference to Exhibit 10.4 to our Registration Statement on Form SB-2 filed January 23, 2006 (Reg. No. 333-131216), as amended)[CTR]
10.7	Sublease Agreement (incorporated by reference to Exhibit 10.5 to our Registration Statement on Form SB-2 filed January 23, 2006 (Reg. No. 333-131216), as amended)
10.8	Service Center Agreement by and between the Registrant and ITN Energy Systems, Inc. (incorporated by reference to Exhibit 10.6 to our Registration Statement on Form SB-2 filed January 23, 2006 (Reg. No. 333-131216), as amended)

Table of Contents

Exhibit No.	Description
10.9	Manufacturing Line Agreement by and between the Registrant and ITN Energy Systems, Inc. (incorporated by reference to Exhibit 10.7 to our Registration Statement on Form SB-2 filed January 23, 2006 (Reg. No. 333-131216), as amended)
10.10	Amendment No. 1 to Manufacturing Line Agreement between the Registrant and ITN Energy Systems, Inc. (incorporated by reference to Exhibit 10.7A to our Registration Statement on Form SB-2 filed January 23, 2006 (Reg. No. 333-131216), as amended)
10.11	Administrative Services Agreement by and between the Registrant and ITN Energy Systems, Inc. (incorporated by reference to Exhibit 10.8 to our Registration Statement on Form SB-2 filed January 23, 2006 (Reg. No. 333-131216), as amended)
10.12	Amendment No. 1 to Administrative Services Agreement between the Registrant and ITN Energy Systems, Inc. (incorporated by reference to Exhibit 10.8A to our Registration Statement on Form SB-2 filed January 23, 2006 (Reg. No. 333-131216), as amended)
10.13	Letter Agreement with the University of Delaware (incorporated by reference to Exhibit 10.16 to our Registration Statement on Form SB-2 filed January 23, 2006 (Reg. No. 333-131216), as amended)
10.14	License Agreement between UD Technology Corporation and Ascent Solar Technologies, Inc. (incorporated by reference to Exhibit 10.1 to our current report on Form 8-K filed November 29, 2007)[CTR]
10.15	Novation Agreement with ITN Energy Systems, Inc. and the United States Government (incorporated by reference to Exhibit 10.23 to our Annual Report on Form 10-KSB filed March 30, 2007)
10.16	Amendment to Service Center Agreement with ITN Energy Systems, Inc. (incorporated by reference to Exhibit 10.24 to our Annual Report on Form 10-KSB filed March 30, 2007)
10.17	Amendment to Sublease Agreement with ITN Energy Systems, Inc. (incorporated by reference to Exhibit 10.25 to our Annual Report on Form 10-KSB filed March 30, 2007)
10.18	Securities Purchase Agreement with Norsk Hydro Produksjon AS (incorporated by reference to Exhibit 99.1 to our current report on form 8-K filed March 13, 2007)
10.19	Stockholders Agreement with Norsk Hydro Produksjon AS (incorporated by reference to Exhibit 99.2 to our current report on form 8-K filed March 13, 2007)
10.20	Registration Rights Agreement with Norsk Hydro Produksjon AS (incorporated by reference to Exhibit 99.3 to our current report on form 8-K filed March 13, 2007)
10.21	Voting Agreement with Norsk Hydro Produksjon AS (incorporated by reference to Exhibit 99.4 to our current report on form 8-K filed March 13, 2007)
10.22	Contract to Buy and Sell Real Estate and Closing Statement with JN Properties (incorporated by reference to Exhibit 10.36 to our Annual Report on Form 10-K filed March 14, 2008)
10.23	Construction Loan Agreement with Colorado Housing and Finance Authority (incorporated by reference to Exhibit 10.37 to our Annual Report on Form 10-K filed March 14, 2008)
10.24	Promissory Note with Colorado Housing and Finance Authority (incorporated by reference to Exhibit 10.38 to our Annual Report on Form 10-K filed March 14, 2008)
10.25	Construction and Permanent Loan Commitment with Colorado Housing and Finance Authority (incorporated by reference to Exhibit 10.39 to our Annual Report on Form 10-K filed March 14, 2008)
10.26	Norsk Hydro Cooperation Agreement (incorporated by reference to Exhibit 10.1 to our current report on form 8-K filed December 19, 2007)

Table of Contents

Exhibit No.	Description
10.27	Amendment No. 1 to Securities Purchase Agreement with Norsk Hydro Produksjon AS (incorporated by reference to Exhibit 10.41 to our Annual Report on Form 10-K filed March 14, 2008)
10.28	Employment Agreement with Gary Gatchell (incorporated by reference to Exhibit 99.1 to our Current Report on Form 8-K filed March 31, 2008)
10.29	Restricted Stock Award Agreement with Gary Gatchell (incorporated by reference to Exhibit 10.43 to our Quarterly Report on Form 10-Q filed April 29, 2008)
10.30	Amendment to Employment Agreement with Mohan Misra (incorporated by reference to Exhibit 44 to our Quarterly Report on Form 10-Q filed August 8, 2008)
10.31	Amended 2008 Restricted Stock Plan and Form of Restricted Stock Award Agreement and Form of Restricted Stock Unit Agreement (incorporated by reference to Exhibit 10.47 to our Quarterly Report on Form 10-Q filed November 10, 2008)
10.32	Separation Agreement and General Release with Matthew Foster (incorporated by reference to Exhibit 10.47 to our Quarterly Report on Form 10-Q filed November 10, 2008)
10.33	Amendment No. 1 to Separation Agreement and General Release with Matthew Foster (incorporated by reference to Exhibit 10.47 to our Quarterly Report on Form 10-Q filed November 10, 2008)
10.34	Consultant Agreement with Matthew Foster (incorporated by reference to Exhibit 10.47 to our Quarterly Report on Form 10-Q filed November 10, 2008)
10.35	Loan Modification Agreement with Colorado Housing and Finance Authority (incorporated by reference to Exhibit 10.52 to our Annual Report on Form 10-K filed March 12, 2008)
10.36	Amended and Restated Executive Employment Agreement with Farhad Moghadam (incorporated by reference to Exhibit 10.1 to our Quarterly Report on Form 10-Q filed August 7, 2009)
10.37	Restricted Stock Unit Agreement with Farhad Moghadam (incorporated by reference to Exhibit 10.3 to our Quarterly Report on Form 10-Q filed August 7, 2009)
10.38	Stock Option Agreement with Farhad Moghadam (incorporated by reference to Exhibit 10.4 to our Quarterly Report on Form 10-Q filed August 7, 2009)
10.39	Inducement Award Agreement with Farhad Moghadam (incorporated by reference to Exhibit 10.5 to our Quarterly Report on Form 10-Q filed August 7, 2009)
10.40	Third Amended and Restated 2005 Stock Option Plan (incorporated by reference to Exhibit 4.1 to our Registration Statement on Form S-8 filed September 9, 2009 (Reg. No. 333-161798))
10.41	Photovoltaic Module Supply Agreement by and between the Registrant and Turtle Energy LLC (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed September 23, 2009)[CTR]
10.42	Securities Purchase Agreement dated as of September 29, 2009 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed October 1, 2009)
10.43	Form of Registration Rights Agreement (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed October 1, 2009)
10.44	Separation Agreement and General Release with Prem Nath*
10.45	Consultant Agreement with Prem Nath*
10.46	Equipment Purchase Agreement dated January 7, 2010 with ITN Energy Systems, Inc.*
23.1	Consent of Hein & Associates LLP*
31.1	Chief Executive Officer Certification pursuant to section 302 of the Sarbanes-Oxley Act of 2002*

Table of Contents

Exhibit No.	Description
31.2	Chief Financial Officer Certification pursuant to section 302 of the Sarbanes-Oxley Act of 2002*
32.1	Chief Executive Officer Certification pursuant to section 906 of the Sarbanes-Oxley Act of 2002*
32.2	Chief Financial Officer Certification pursuant to section 906 of the Sarbanes-Oxley Act of 2002*

* Filed herewith

CTR Portions of this exhibit have been omitted pursuant to a request for confidential treatment.