

25,000,000 Shares



GT Solar International, Inc.

Common Stock

The selling stockholder named in this prospectus supplement is selling 25,000,000 shares of common stock. We will not receive any of the proceeds from the shares of common stock sold in this offering. Our common stock is listed on the Nasdaq Global Select Market under the symbol "SOLR." The last reported sale price of our common stock on March 9, 2010 was \$5.15 per share.

The underwriters have an option to purchase from the selling stockholder a maximum of 3,750,000 additional shares to cover over-allotments of shares.

Investing in our common stock involves risks. See "Risk Factors" on page S-8 of this prospectus supplement to read about factors you should consider before buying shares of our common stock.

	Price to Public	Underwriting Discounts and Commissions	Proceeds to the Selling Stockholder
Public Offering Price Per Share	\$4.85	\$0.21825	\$4.63175
Total	\$121,250,000	\$5,456,250	\$115,793,750

The underwriters expect to deliver the shares of common stock to the purchasers on or about March 15, 2010.

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

UBS Investment Bank

Credit Suisse

Thomas Weisel Partners LLC

Pacific Crest Securities

Raymond James

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PROSPECTUS

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ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement and the accompanying prospectus form part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission, or the “SEC,” using a “shelf” registration process. This document contains two parts. The first part consists of this prospectus supplement, which provides you with specific information about the shares of our common stock that the selling stockholder is selling in this offering and about the offering itself. The second part, the accompanying prospectus, provides more general information, some of which may not apply to this offering. If the description of this offering varies between this prospectus supplement and the accompanying prospectus, you should rely on the information contained in this prospectus supplement. Before purchasing any shares of common stock, you should carefully read both this prospectus supplement and the accompanying prospectus, together with additional information described in this prospectus supplement and in the accompanying prospectus under the captions “Where You Can Find More Information.”

You should rely only on the information contained in or incorporated by reference into this prospectus supplement and the accompanying prospectus. Neither we, the selling stockholder nor any underwriter has authorized anyone to provide information different from that contained in this prospectus supplement, the accompanying prospectus and the documents incorporated by reference herein and therein.

The information contained in this prospectus supplement and the accompanying prospectus or in any document incorporated by reference herein and therein is accurate only as of its date, regardless of the time of delivery of this prospectus supplement or any sale of common stock.

This prospectus supplement is not an offer to sell or solicitation of an offer to buy these shares of common stock in any circumstances under which or jurisdiction in which the offer or solicitation is unlawful.

Unless the context otherwise indicates, the terms “GT Solar,” “Company,” “we,” “us,” and “our” as used in this prospectus supplement and the accompanying prospectus refer to GT Solar International, Inc. and its subsidiaries.

INDUSTRY AND MARKET DATA

Information regarding markets, market size, market share, market position, growth rates, forecasts and other industry data pertaining to our business contained in or incorporated by reference into this prospectus supplement or the accompanying prospectus consists of estimates based on data and reports compiled by professional organizations, industry consultants and analysts, on data from other external sources, and on our knowledge and internal surveys of the solar and polysilicon industries. Marketbuzz 2009, an annual report dated March 2009 prepared by Solarbuzz, an international solar energy market research and consulting company, was the primary source for third party industry data and forecasts. In many cases, there is no readily available external information (whether from trade associations, government bodies or other organizations) to validate market related analyses and estimates, requiring us to rely on these third party industry publications and internally developed estimates. None of the independent industry publications cited in this prospectus supplement or the accompanying prospectus was prepared on our behalf or our affiliates’ behalf. These reports are generally publicly available for a fee.

We take responsibility for compiling, extracting and reproducing market or other industry data from external sources, including third parties or industry or general publications, but neither we nor underwriters have independently verified that data. While we believe our internal estimates to be reasonable, they have not been verified by any independent sources and we cannot assure prospective investors as to their accuracy. In view of the emerging nature of the solar and polysilicon industries and

the absence of publicly available information on most of the photovoltaic equipment and polysilicon manufacturers (including, without limitation, their existing production capacity, business plans and strategies), the estimates for the size of the solar and polysilicon markets and their projected growth rates contained in or incorporated by reference into this prospectus supplement or the accompanying prospectus should be considered with caution. Certain market share information and other statements contained in or incorporated by reference into this prospectus supplement or the accompanying prospectus regarding the solar and polysilicon industries and our position relative to our competitors is not based on published statistical data or information obtained by independent third parties. Rather, such information and statements reflect our management's best estimates based upon information obtained from trade and industry organizations and associations and other contacts within the solar and polysilicon industries.

PROSPECTUS SUPPLEMENT SUMMARY

This summary does not contain all of the information that you should consider before investing in our common stock. You should read the entire prospectus supplement, the accompanying prospectus and the documents incorporated by reference herein and therein carefully, including the matters discussed under the caption "Risk Factors" and the detailed information and financial statements, in each case, included or incorporated by reference in this prospectus supplement and the accompanying prospectus. Unless the context otherwise indicates, the terms "Company," "we," "us" and "our" and similar terms refer to GT Solar International, Inc. and its direct and indirect subsidiaries on a consolidated basis. References to our "common stock" refer to the common stock of GT Solar International, Inc.

OUR COMPANY

We are a leading global provider of specialized manufacturing equipment and services for the production of photovoltaic, or PV, wafers, cells and modules and polysilicon. Our principal products are directional solidification systems, or "DSS" units, and chemical vapor deposition, or "CVD," reactors and related equipment. DSS units are specialized furnaces used to melt polysilicon and cast multicrystalline ingots from which solar wafers are made. CVD reactors are used to react gases at high temperatures and pressures to produce polysilicon, the key raw material used in solar cells. Our customers include several of the world's largest solar companies as well as companies in the chemical industry. The use of our products requires substantial technical know-how and most of our customers rely on us to design and optimize their production processes as well as train their employees in the use of our equipment.

We operate through two segments: our photovoltaic business and our polysilicon business. Our photovoltaic business manufactures and sells primarily DSS units as well as related parts and services. From April 1, 2005 through December 26, 2009, we shipped over 1,290 DSS units, representing over 6 gigawatts of ingot production capacity. Our polysilicon business primarily sells CVD reactors and related equipment specifically designed for the production of polysilicon and has recently begun selling trichlorosilane and silane engineering packages. From July 31, 2007 through December 26, 2009, we shipped over 170 CVD reactors and over 35 silicon tetrachloride, or "STC," converters, representing over 45,000 metric tons of polysilicon production capacity.

Our business was founded in 1994. Effective January 1, 2006, our business was acquired (the "Acquisition") by GT Solar Holdings, LLC, a newly formed company controlled by investment funds affiliated with G3W Ventures LLC, or "G3W," (formerly GFI Energy Ventures LLC), a private equity investment firm focused on the energy sector, and Oaktree Capital Management, L.P., or "OCM," a global alternative and non-traditional investment manager. GT Solar International, Inc. was originally incorporated in Delaware in September 2006. On September 27, 2006, we completed an internal reorganization through which GT Solar International, Inc. became the parent company of GT Solar Incorporated, our principal operating subsidiary.

OUR COMPETITIVE STRENGTHS

We believe that the following strengths enable us to compete effectively and to capitalize on the rapid growth of the global photovoltaic market:

- Leading market position in specialized furnace technology essential for the production of multicrystalline solar wafers;
- Recognized enabler of new entrants to the polysilicon industry;
- Large installed base of equipment;

- Established relationships with many of the world's leading solar companies, particularly those located in Asia;
- Large and growing presence in China, a major growth market for solar manufacturing;
- Strong balance sheet with no debt and \$194.7 million in cash as of December 26, 2009; and
- Limited additional capital requirements.

OUR STRATEGY

We intend to increase our market share and optimize our financial performance through the following strategies:

- Help to enable the solar industry to achieve production cost parity with conventional energy sources by supplying equipment and technology that helps to lower our customers' production costs;
- Protect our customers' investment in capital equipment by providing technical improvements for existing products that enhance their productivity and efficiency;
- Better serve our customers in Asia by expanding our customer service, sales and assembly operations in China; and
- Develop or acquire complementary technologies or businesses.

RECENT DEVELOPMENTS

On February 25, 2010, we announced that we signed new contracts totaling more than \$200 million for our market-leading DSS450™ ingot growth furnaces and ancillary equipment and services. This includes a \$137 million follow-on order from a large Chinese customer, as well as orders from Tianwei New Energy Holdings Co, Ltd., Phoenix Photovoltaic Technology Co, Ltd., Yingli Green Energy Holding Company Ltd., JA Solar Holding Co, Ltd., Taiwan-based Sino-American Silicon Products (SAS) and one other customer. The orders were booked in our current fourth fiscal quarter and revenue for these orders is expected to be recognized in periods subsequent to the current fiscal year.

OUR CORPORATE INFORMATION

Our principal executive offices are located at 243 Daniel Webster Highway, Merrimack, New Hampshire 03054, and our telephone number is (603) 883-5200. Our website address is www.gtsolar.com. The information found on our website is not part of this prospectus supplement or the accompanying prospectus.

THE OFFERING

Issuer	GT Solar International, Inc.
Selling Stockholder	GT Solar Holdings, LLC
Common stock offered by the Selling Stockholder	25,000,000 shares
Common stock outstanding after the offering . . .	143,685,545 shares
Over-allotment option from the Selling Stockholder	3,750,000 shares
Use of proceeds	We will not receive any proceeds from the sale of shares in this offering. See “Use of Proceeds.”
Dividend policy	We do not intend to pay dividends on our common stock in the foreseeable future. See “Dividend Policy.”
The Nasdaq Global Select Market symbol	“SOLR”
Risk Factors	You should carefully read and consider the information set forth under “Risk Factors” and all other information set forth in this prospectus supplement and the accompanying prospectus and in the information incorporated by reference herein and therein before investing in our common stock.

The number of shares to be outstanding after consummation of this offering is based on 143,685,545 shares of common stock outstanding as of February 23, 2010 and does not include 6,342,586 shares subject to outstanding stock options at a weighted average exercise price of \$4.30 per share, 2,304,029 restricted stock units outstanding, and 10,336,531 additional shares of common stock reserved for issuance under our equity incentive plans as of December 26, 2009.

Except as otherwise noted, all information in this prospectus supplement assumes no exercise of the underwriters’ over-allotment option.

SUMMARY HISTORICAL AND OTHER FINANCIAL DATA

The following table presents our summary historical and other financial data, which is condensed and may not contain all of the information that you should consider. You should read this information in conjunction with “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and our financial statements and related notes in our annual and quarterly reports incorporated by reference in this prospectus supplement. The summary historical consolidated financial data for the fiscal years ended March 31, 2007, March 31, 2008 and March 28, 2009 have been derived from our historical consolidated financial statements, all of which have been audited by Ernst & Young LLP, an independent registered public accounting firm, and are incorporated by reference herein. The summary historical consolidated financial data for the nine months ended December 26, 2009 and December 27, 2008 have been derived from our unaudited financial statements which are incorporated by reference herein. The unaudited financial statements, in the opinion of management, reflect all adjustments, consisting of only normal or recurring adjustments, necessary to present fairly our results of operations as of and for the periods presented. Results for interim periods are not necessarily indicative of results that may be expected for a full fiscal year. Historical results are not necessarily indicative of the results expected in the future.

	Fiscal Year Ended			(Unaudited) Nine Months Ended	
	March 31, 2007	March 31, 2008	March 28, 2009	December 27, 2008	December 26, 2009
	(in thousands, except per share data)				
Statement of Operations Data:					
Revenue	\$ 60,119	\$244,052	\$541,027	\$402,483	\$349,569
Cost of Revenue	36,284	151,709	326,358	227,274	203,658
Gross Profit	23,835	92,343	214,669	175,209	145,911
Research and Development	3,810	10,517	18,323	13,193	16,351
Selling, General, Administrative and Marketing	18,309	31,887	49,697	37,402	38,555
Amortization of Intangible Assets(1)	15,446	3,018	3,105	2,315	2,373
Income (Loss) from Operations	(13,730)	46,921	143,544	122,299	88,632
Net Interest Income (Expense)	(774)	4,892	4,648	4,432	(927)
Other Income (Expense)	(5,667)	(1,244)	(6,012)	(4,440)	(2,241)
Income (Loss) before Income Taxes	(20,171)	50,569	142,180	122,291	85,464
Provision (Benefit) for Income Taxes	(1,816)	14,464	54,212	46,081	31,479
Net Income (Loss)	<u>\$ (18,355)</u>	<u>\$ 36,105</u>	<u>\$ 87,968</u>	<u>\$ 76,210</u>	<u>\$ 53,985</u>
Income (Loss) Per Common Share:					
Basic	\$ (0.13)	\$ 0.25	\$ 0.62	\$ 0.53	\$ 0.38
Diluted	\$ (0.13)	\$ 0.25	\$ 0.61	\$ 0.52	\$ 0.37
Shares used to compute Income (Loss)					
Per Share:					
Basic	142,290	142,290	142,582	142,590	143,301
Diluted	142,290	144,059	144,471	144,473	145,304
Dividends Paid per Common Share	—	—	\$ 0.632	\$ 0.632	—

	Fiscal Year Ended			(Unaudited) Nine Months Ended	
	March 31, 2007	March 31, 2008	March 28, 2009	December 27, 2008	December 26, 2009
	(in thousands, except per share data)				
Other Financial Data:					
Depreciation and Amortization	\$ 16,067	\$ 4,052	\$ 5,111	\$ 3,638	\$ 5,051
Capital Expenditures	1,801	4,483	10,509	8,601	2,467
Balance Sheet Data (at end of period):					
Cash and Cash Equivalents	\$ 74,059	\$ 54,839	\$107,148	\$ 93,673	\$194,697
Working Capital(2)	(11,234)	33,039	57,672	6,771	133,713
Total Debt	15,934	—	—	—	—
Stockholders' Equity	47,098	91,641	81,905	69,458	143,817
Cash Flow Data:					
Cash provided by (used in):					
Operating Activities	\$ 70,659	\$ 1,532	\$152,872	\$137,618	\$ 89,238
Investing Activities	(2,324)	(4,841)	(10,959)	(8,622)	(2,467)
Financing Activities	(305)	(15,934)	(89,614)	(90,243)	779
Other	3	23	10	81	(1)
Net Increase (Decrease) in Cash and Cash Equivalents	<u>\$ 68,033</u>	<u>\$ (19,220)</u>	<u>\$ 52,309</u>	<u>\$ 38,834</u>	<u>\$ 87,549</u>

(1) The application of purchase accounting in connection with the Acquisition resulted in the recording of approximately \$30.3 million of intangible assets, the amortization of which amounted to approximately \$15.4 million, \$2.8 million and \$2.7 million for the fiscal years ended March 31, 2007 and 2008 and March 28, 2009, respectively, and approximately \$2.0 million and \$1.9 million for the nine months ended December 27, 2008 and December 26, 2009, respectively.

(2) Working capital represents current assets minus current liabilities.

RISK FACTORS

Investing in our common stock involves substantial risk. Our business, operating results and cash flows can be impacted by a number of factors, any one of which could cause our actual results to vary materially from recent results or from our anticipated future results. You should carefully consider the risks described below and the other information in this prospectus supplement, the accompanying prospectus and the documents incorporated by reference herein and therein before deciding to invest in shares of our common stock. If any of the following risks or uncertainties actually occurs, our business, financial condition and operating results would likely suffer. In that event, the market price of our common stock could decline and an investor in our common stock could lose all or part of their investment.

Risks Related to Our Business Generally

General economic conditions may have an adverse impact on demand for our products.

The global economy has recently experienced a downturn. Demand for products requiring significant capital expenditures, such as our DSS units and CVD reactors, is affected by general economic conditions. The downturn in the global construction market has reduced demand for solar panels in new residential and commercial buildings, which in turn has reduced demand for our products that are used in the manufacture of photovoltaic wafers, cells and modules and polysilicon for the solar power industry. Uncertainty about economic conditions, negative financial news, tighter credit markets and declines in asset values have caused our customers to postpone making purchases of capital equipment. Increasing budgetary pressures could reduce or eliminate government subsidies and economic incentives for on-grid solar electricity applications. Some economists are predicting that the United States economy, and possibly the global economy, could remain in a prolonged recession. A prolonged downturn in the global economy could have a material adverse effect on our business in a number of ways, including decreased demand for our products, which would result in lower sales and reduced backlog.

The current economic conditions and uncertainty about future economic conditions make it challenging for us to forecast our operating results, make business decisions and identify the risks that may affect our business. If we are not able to timely and appropriately adapt to changes resulting from the difficult macroeconomic environment, our business, results of operations and financial condition may be materially and adversely affected.

Current or future credit and financial market conditions could materially and adversely affect our business and results of operations in several ways.

As widely reported, financial markets in the United States, Europe and Asia have been experiencing extreme disruption recently, including, among other things, extreme volatility in security prices, severely diminished liquidity and credit availability, rating downgrades of certain investments and declining valuations of others. There can be no assurance that there will not be further deterioration in credit and financial markets and confidence in economic conditions. These economic developments affect businesses such as ours in a number of ways. The current tightening of credit in financial markets has resulted in reduced funding worldwide and a higher level of uncertainty for solar module manufacturers. As a result, some of our customers have been delayed in securing or prevented from securing funding adequate to honor their existing contracts with us or to enter into new contracts to purchase our products. We believe the reduced availability of funding for new manufacturing facilities and facility expansions, together with reduced demand for solar panels, has caused a decrease in orders for our products. We currently require most of our customers to prepay a portion of the purchase price of their orders. We use these customer deposits to prepay our suppliers to reduce the need to borrow to cover our cash needs for working capital. This practice may not be sustainable if the recent market conditions continue. Some of our customers who have become financially distressed have failed to provide letters of credit or make payments in accordance with the terms of their existing contracts. If

customers fail to post letters of credit or make payments, and we do not agree to revised terms, it could have a significant impact on our business, results of operations and financial condition.

During the fiscal year ended March 28, 2009 and the nine months ended December 26, 2009, some of our customers failed to make deposits when due under their contracts, and we terminated those contracts. As a result of these terminations and other contract revisions, our order backlog was reduced by approximately \$39 million during the fiscal year ended March 28, 2009 and by approximately \$76 million during the nine months ended December 26, 2009. Certain of our large customers have requested that we extend the delivery schedules and make other contract modifications under our contracts with them. Any contract modifications that we negotiate with these customers could include an extension of delivery dates, and could result in lower pricing or a reduction in the number of units deliverable under the contract, thereby reducing our order backlog.

As a result of customer delays or contract terminations, we may be required to reschedule and/or cancel purchase orders with our vendors to procure materials and reimburse the vendor for costs incurred to the date of termination plus predetermined profits. In cases where we are not able to cancel or modify purchase orders impacted by customer delays or terminations, our purchase commitments could exceed our order backlog requirements and we may be unable to redeploy the undelivered equipment. As a result of customer delays, contract modifications and terminations, we rescheduled and/or cancelled commitments to our vendors and, as a result, we recorded losses relating to expected forfeitures of vendor advances and reserves against advances on inventory purchases with vendors that have become financially distressed of \$11.3 million in the fiscal year ended March 28, 2009 and \$1.0 million in the nine months ended December 26, 2009.

Further delays in deliveries could cause us to have inventories in excess of our short-term needs and may delay our ability to recognize revenue on contracts in our order backlog. Additional contract breaches or cancellation of orders would prevent us from recognizing revenue on contracts in our order backlog and may require us to reschedule and/or cancel additional commitments to vendors in the future.

Such credit and financial market conditions may similarly affect our suppliers. We may lose advances we make to our suppliers in the event they become insolvent because our advances are not secured or backed by letters of credit. The inability of our suppliers to obtain credit to finance development and/or manufacture our products could result in delivery delays or prevent us from delivering our products to our customers. In addition, the volatility in the credit markets has severely diminished liquidity and capital availability. While the ultimate outcome of the disruptions in the credit markets cannot be predicted, they may result in events that could prevent us from borrowing money from our existing lenders under our senior credit facility. If the credit crisis continues, the senior credit facility may not continue to be available to us in accordance with terms of the agreement.

We are unable to predict the likely duration and severity of the current disruption in financial markets and adverse worldwide economic conditions and any resulting effects or changes, including those described above, may have a material and adverse effect on our business, results of operations and financial condition.

Amounts included in our order backlog may not result in actual revenue or translate into profits.

Although our order backlog is based on signed purchase orders or other written contractual commitments, we cannot guarantee that our order backlog will result in actual revenue in the originally anticipated period or at all. In addition, the contracts included in our order backlog may not generate margins equal to our historical operating results. We have only recently begun to track our order backlog on a consistent basis as a performance measure and, as a result, we do not have significant experience in determining the level of realization that we will actually achieve on our backlog. Our customers may experience project delays or defaults on the terms of their contracts with us as a result

of external market factors and economic or other factors beyond our control. If a customer fails to perform its contractual obligations and we do not reasonably expect such customer to perform its obligations, we may terminate the contract. As a result of terminations and other contract revisions, our order backlog was reduced by approximately \$39 million during the fiscal year ended March 28, 2009 and by approximately \$76 million during the nine months ended December 26, 2009. In addition, certain of our large customers have requested that we extend the delivery schedules and make other modifications under their contracts in our order backlog. We are currently in negotiations with these customers over their requests. Any contract modifications that we negotiate could likely include an extension of delivery dates, and could result in lower pricing or in a reduction in the number of units deliverable under the contract, thereby reducing our order backlog. We believe approximately 20% of our order backlog as of December 26, 2009 is at risk to varying degrees. This amount includes contracts with customers to whom we have sent notices of breach for failure to provide letters of credit or to make payments when due. If we cannot come to an agreement with these customers, it could result in a reduction of our order backlog. Other customers with contracts in our order backlog that are not currently under negotiation may approach us with similar requests in the future, or may fail to make payments when due, which could further reduce our order backlog. If our order backlog fails to result in revenue in a timely manner, or at all, we could experience a reduction in revenue, profitability and liquidity.

We currently depend on a small number of customers in any given fiscal year for a substantial part of our sales and revenue.

In each fiscal year, we depend on a small number of customers for a substantial part of our sales and revenue. For example, in the fiscal year ended March 28, 2009, four customers accounted for 62% of our revenue, in the fiscal year ended March 31, 2008, one customer accounted for 62% of our revenue and in the fiscal year ended March 31, 2007, three customers accounted for 70% of our revenue and in the nine months ended December 26, 2009, three customers accounted for 47% of our revenue. In addition, as of December 26, 2009, we had a \$857 million order backlog of which \$609 million was attributable to three customers. As a result, the default in payment by any of our major customers, the loss of existing orders or lack of new orders in a specific financial period, or a change in the product acceptance schedule by such customers in a specific financial period, could significantly reduce our revenues and have a material adverse effect on our financial condition, results of operations, business and/or prospects. We anticipate that our dependence on a limited number of customers in any given fiscal year will continue for the foreseeable future. There is a risk that existing customers will elect not to do business with us in the future or will experience financial difficulties. Furthermore, many of our customers are at an early stage and many are dependent on the equity capital markets to finance their purchase of our products. As a result, these customers could experience financial difficulties and become unable to fulfill their contracts with us. There is also a risk that our customers will attempt to impose new or additional requirements on us that reduce the profitability of those customers for us. If we do not develop relationships with new customers, we may not be able to increase, or even maintain, our revenue, and our financial condition, results of operations, business and/or prospects may be materially adversely affected.

Our success depends on the sale of a limited number of products.

A significant portion of our operating profits has historically been derived from sales of DSS units and CVD reactors, which sales accounted for 88% of our revenue for the nine months ended December 26, 2009, 89% of our revenue in the fiscal year ended March 28, 2009, 79% of our revenue in the fiscal year ended March 31, 2008 and 85% of our revenue in the fiscal year ended March 31, 2007. There can be no assurance that DSS and CVD sales will increase beyond, or be maintained at, past levels. Factors affecting the level of future DSS or CVD sales include factors beyond our control, including, but not limited to, competing product offerings by other equipment manufacturers. There

can be no assurance that we will be able to successfully diversify our product offering and thereby increase our revenue and/or maintain our profits in the event of a decline in DSS and CVD sales. If sales of DSS units or CVD reactors decline for any reason, our financial condition, results of operations, business and/or prospects could be materially adversely affected.

We depend on a limited number of third party suppliers.

We use component parts supplied by a small number of third party suppliers in our products and source most equipment used in our turnkey solutions from third party suppliers. Our supplier agreements are typically short-term in nature, which leaves us vulnerable to the risk that our suppliers may change the terms on which they have previously supplied products to us or cease supplying products to us at any time and for any reason. There is no guarantee that we will maintain relationships with our existing suppliers or develop new relationships with other suppliers. In addition, many of our suppliers are small companies that may cease operations for any reason, including financial viability reasons, and/or may be unable to meet increases in our demand for component parts and equipment, as we expand and grow our business. We are also dependent on our suppliers to maintain the quality of the components we use and the increased demands placed on these suppliers as we continue to grow may result in quality control problems. We may be unable to identify replacement or additional suppliers or qualify their products in a timely manner and on commercially reasonable terms. Component parts supplied by new suppliers may also be less suited to our products than the component parts supplied by our existing suppliers. Certain of the component parts used in our products have been developed, made or adapted specifically for us. Such parts are not generally available from many vendors and could be difficult to obtain elsewhere. As a result, there may be a significant time lag in securing an alternative source of supply.

Our failure to obtain sufficient component parts and/or third party equipment that meet our requirements in a timely manner and on commercially reasonable terms could interrupt or impair our ability to fabricate our products and provide turnkey solutions, and may adversely impact our plans to expand and grow our business, as well as result in a loss of market share. Further, such failure may prevent us from delivering our products as required by the terms of our contracts with our customers, and may harm our reputation and result in breach of contract and other claims being brought against us by our customers. Any changes to our current supply arrangements, whether to the terms of supply from existing suppliers or a change in our suppliers, may also increase our costs.

As a result of any of the foregoing factors, our financial condition, results of operations, business and/or prospects could be materially adversely affected.

We may face product liability claims and/or claims in relation to third party equipment.

It is possible that our products could result in property damage and/or personal injury, whether by product malfunctions, defects, improper use or installation or other causes. We cannot predict whether or not product liability claims will be brought against us or the effect of any resulting negative publicity on our business, which may include loss of existing customers, failure to attract new customers and a decline in sales. The successful assertion of product liability claims against us could result in potentially significant monetary damages being payable by us, and we may not have adequate resources to satisfy any judgment against us. Furthermore, it may be difficult to determine whether any damage or injury was due to product malfunction or operator error. For example, two of our customers have experienced accidents at their respective facilities involving our DSS units, the most recent of which occurred in December 2006, and resulted in two deaths. To date, we have not received any product liability or other claims with respect to such accidents. The bringing of product liability claims against us, whether ultimately successful or not, could have a material adverse effect on our financial condition, results of operations, business and/or prospects.

We provide third party equipment in connection with both turnkey solutions and stand-alone sales. There can be no guarantee that such third party equipment will function in accordance with our intended or specified purpose or that the customer's personnel, in particular those who are inexperienced in the use of the specialized equipment sold by us, will be able to install and operate it, which may result in the return of products and/or claims by the customer against us. In the event of a claim against us, there is no guarantee that we will be able to recover all or any of our loss from the third party equipment provider. Any such claim, in particular in the case of a turnkey solution where the customer may return other equipment sold by us or cancel related orders, could have a material adverse effect on our financial condition, results of operations, business and/or prospects.

Our future success depends on our management team and on our ability to attract and retain key employees and to integrate new employees into our management team successfully.

We are dependent on the services of our management team. Although certain of these individuals are subject to service agreements with us, any and all of them may choose to terminate their employment with us on thirty or fewer days' notice. The loss of any member of the management team could have a material adverse effect on our financial condition, results of operations, business and/or prospects. There is a risk that we will not be able to retain or replace these or other key employees. Integrating new employees into our management team could prove disruptive to our daily operations, require a disproportionate amount of resources and management attention and ultimately prove unsuccessful. This may have a material adverse effect on our financial condition, results of operations, business and/or prospects.

We may be unable to attract, train and retain technical personnel.

Our future success depends, to a significant extent, on our ability to continue to develop and improve our technology and to attract, train and retain experienced and knowledgeable technical personnel. Recruiting and retaining capable personnel, particularly those with expertise in the polysilicon and/or solar products industries, is vital to our success. There is substantial competition for qualified technical personnel, and qualified personnel are currently, and for the foreseeable future are likely to remain, a limited resource. Locating candidates with the appropriate qualifications, particularly for our New Hampshire and Montana locations, can be costly, time-consuming and difficult. There can be no assurance that we will be able to attract new, or retain existing, technical personnel. We may need to provide higher compensation or increased training to our personnel than current levels. If we are unable to attract and retain qualified personnel, or must change the terms on which our personnel are employed, our financial condition, results of operations, business and/or prospects may be materially adversely affected.

We may be unable to protect our intellectual property adequately and may face litigation to protect our intellectual property rights.

As of December 26, 2009, we had 12 U.S. patents, 11 pending U.S. patent applications, 7 foreign patents and 16 pending foreign patent applications. Our ability to compete effectively against other solar equipment manufacturers will depend, in part, on our ability to protect our current and future proprietary technologies, product designs, business methods and manufacturing processes under relevant intellectual property laws, combined in some circumstances with protecting our patent, trademark and copyright rights and rights under trade secrecy and unfair competition laws. Third parties may infringe, misappropriate or otherwise violate our proprietary technologies, product designs, manufacturing processes and our intellectual property rights therein, which could have a material adverse effect on our financial condition, results of operations, business and/or prospects. Litigation to prevent, or seek compensation for, such infringement, misappropriation or other violation may be costly and may divert management attention and other resources away from our business without any guarantee of success.

We rely to an extent upon unpatented proprietary manufacturing expertise, continuing technological innovation and other trade secrets to develop and maintain our competitive position. This includes both proprietary information of ours and proprietary information licensed from third parties. While we generally enter into confidentiality and non-disclosure agreements with our employees and third parties to protect our intellectual property and that of our licensors, such confidentiality and non-disclosure agreements could be breached and are limited, in some instances, in duration and may not provide meaningful protection for the trade secrets or proprietary manufacturing expertise that we hold or that is licensed to us. We have had in the past and may continue to have certain of our employees terminate their employment with us to work for one of our customers or competitors. Adequate or timely remedies may not be available in the event of misappropriation, unauthorized use or disclosure of our manufacturing expertise, technological innovations and trade secrets. In addition, others may obtain knowledge of our manufacturing expertise, technological innovations and trade secrets through independent development or other legal means and, in such cases, we may not be able to assert any trade secret rights against such a party.

To the extent that we rely on patent protection, our patents may provide only limited protection for our technology and may not be sufficient to provide competitive advantages to us. For example, competitors could develop different technologies or design around our patents. In addition, patents are of limited duration. Any issued patents may also be challenged, invalidated or declared unenforceable. If our patents are successfully challenged, invalidated or declared unenforceable, other companies will be better able to develop products that compete with ours, which could adversely affect our competitive business position, business prospects and financial condition may be adversely affected. Further, we may not have, or be able to obtain, effective patent protection in all of our key sales territories. Our patent applications may not result in issued patents and, even if they do result in issued patents, the patents may not include rights of the scope that we seek. The patent position of technology-oriented companies, including ours, is uncertain and involves complex legal and factual considerations. Accordingly, we do not know what degree of protection we will obtain from our proprietary rights or the breadth of the claims allowed in patents issued to us or to others. Further, given the costs of obtaining patent protection, we may choose not to protect certain innovations that later turn out to be important to our business.

Certain of the intellectual property used by us are used under license from third parties. In the event of any successful claim that we breached the terms of such license agreements, we could lose our ability to use the relevant intellectual property, which could have a material adverse effect on us and our ability to operate.

The international nature of our business subjects us to a number of risks, including unfavorable political, regulatory, labor and tax conditions in foreign countries.

A substantial majority of our marketing and distribution takes place outside the United States, and a substantial percentage of our sales are to customers outside the United States. In the nine months ended December 26, 2009, we derived 71% of our revenue from sales to customers in Asia, and in the fiscal year ended March 28, 2009, we derived 87% of our revenue from sales to customers in Asia. We also have contracts with customers in Europe and expect to recognize revenue from sales to customers in Asia and Europe in the future. As a result, we are subject to the legal, political, social and regulatory requirements and economic conditions of many jurisdictions other than the United States. Risks inherent to maintaining international operations, include, but are not limited to, the following:

- withholding taxes or other taxes on our foreign income, tariffs or other restrictions on foreign trade and investment, including currency exchange controls imposed by or in other countries;
- the inability to obtain, maintain or enforce intellectual property rights in other jurisdictions, at a reasonable cost or at all;

- 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 our product offering less competitive in some countries; and
- our establishing ourselves and becoming tax resident in foreign jurisdictions.

Our business in foreign markets requires us to respond to rapid changes in market conditions in these countries. Our overall success as a global business depends, in part, on our ability to succeed under differing legal, regulatory, economic, social and political conditions. There can be no assurance that we will be able to develop, implement and maintain policies and strategies that will be effective in each location where we do business. As a result of any of the foregoing factors, our financial condition, results of operations, business and/or prospects could be materially adversely affected.

We are subject to the legal systems of the countries in which we offer and sell our products.

We offer and sell our products internationally, including in some emerging markets. As a result, we are and/or may become subject to the laws, regulations and legal systems of the various jurisdictions in which we carry on business and/or in which our customers or suppliers are located. Among the laws and regulations applicable to our business are health and safety and environmental regulations, which vary from country to country and from time to time. We must therefore design our products and ensure their manufacture so as to comply with all applicable standards. Compliance with legal and regulatory requirements, including any change in existing legal and regulatory requirements, may cause us to incur costs and may be difficult, impractical or impossible. Accordingly, foreign laws and regulations which are applicable to us may have a material adverse effect on our financial condition, results of operations, business and/or prospects.

As a result of the procedural requirements or laws of the foreign jurisdictions in which we carry on business and/or in which our customers or suppliers are located, we may experience difficulty in enforcing supplier or customer agreements or certain provisions thereof, including, for example, the limitations on the product warranty we typically provide to our customers. In some jurisdictions, enforcement of our rights may not be commercially practical in light of the duration, cost and unpredictability of such jurisdiction's legal system. Any inability by us to enforce, or any difficulties experienced by us in enforcing, our contractual rights in foreign jurisdictions may have a material adverse effect on our financial condition, results of operations, business and/or prospects.

We face particular market, commercial, jurisdictional and legal risks associated with our business in China.

We have had significant sales in China, accounting for 54% of our revenue in the nine months ended December 26, 2009, and 62% of our revenue in the fiscal year ended March 28, 2009. Further, we have recently opened facilities in China. Accordingly, our financial condition, results of operations, business and/or prospects could be materially adversely affected by economic, political and legal conditions or developments in China.

Examples of economic and political developments that could adversely affect us include government control over capital investments or changes in tax regulations that are applicable to us. In addition, a substantial portion of the productive assets in China remain government owned. The Chinese government also exercises significant control over Chinese economic growth through the allocation of resources, controlling payment of foreign currency denominated obligations, setting monetary policy and providing preferential treatment to particular industries or companies. Efforts by the Chinese government to slow the pace of growth of the Chinese economy could result in decreased capital expenditures by solar product manufacturers, which in turn could reduce demand for our products. Additionally, China has historically adopted laws, regulations and policies which impose

additional restrictions on the ability of foreign companies to conduct business in China or otherwise place them at a competitive disadvantage in relation to domestic companies. Any adverse change in economic conditions or government policies in China could have a material adverse effect on our overall economic growth and therefore have an adverse effect on our financial condition, results of operations, business and/or prospects.

We also face risks associated with Chinese laws and the Chinese legal system. China's legal system is rapidly evolving and, as a result, the interpretation and enforcement of many laws, regulations and rules are not always uniform and legal proceedings in China often involve uncertainties. The legal protections available to us may therefore be uncertain and may be limited. Enforcement of Chinese intellectual property related laws has historically been weak, primarily because of ambiguities in Chinese laws and difficulties in enforcement. Accordingly, the intellectual property rights and confidentiality protections available to us in China may not be as effective as in the United States or other countries. In addition, any litigation brought by or against us in China may be protracted and may result in substantial costs and diversion of resources and management attention and the anticipated outcome would be highly uncertain. As a result of the foregoing factors, our financial condition, results of operations, business and/or prospects may be materially adversely affected.

We are in the process of expanding our presence in China, including in the areas of customer service, sales, research and development and assembly operations. As we expand our presence in China, we are increasingly exposed to the economic, political and legal conditions and developments in China, which could further exacerbate these risks.

We may face claims in relation to the infringement, misappropriation, or other violation of proprietary manufacturing expertise, technological innovation, and other intellectual property rights.

We face potential claims by third parties of infringement, misappropriation, or other violation of such third parties' intellectual property rights. From time to time we have received and may in the future receive notices or inquiries from other companies regarding our services or products suggesting that we may be infringing their patents or misappropriating their intellectual property rights. Such notices or inquiries may, among other things, threaten litigation against us. In some instances these notices or inquiries may be sent by patent holding companies who have no relevant product line and against whom our patents may therefore provide little or no deterrence. Furthermore, the issuance of a patent does not guarantee that we have the right to practice the patented invention. Third parties may have blocking patents that could be used to prevent us from marketing our own patented product and practicing our own patented technology. In addition, third parties could allege that our products and processes make use of their unpatented proprietary manufacturing expertise and/or trade secrets, whether in breach of confidentiality and non-disclosure agreements or otherwise. If an action for infringement, misappropriation, or other violation of third party rights were successfully brought against us, we may be required to cease our activities on an interim or permanent basis and could be ordered to pay compensation, which could have a material adverse effect on our financial condition, results of operations, business and/or prospects. Additionally, if we are found to have willfully infringed certain intellectual property rights of another party, we may be subject to treble damages and/or be required to pay the other party's attorney's fees. Alternatively, we may need to seek to obtain a license of the third party's intellectual property rights or trade secrets, which may not be available, whether on reasonable terms or at all. In addition, any litigation required to defend such claims brought by third parties may be costly and may divert management attention and other resources away from our business, without any guarantee of success. Moreover, we may also not have adequate resources to devote to our business in the event of a successful claim against us.

From time to time, we hire personnel who may have obligations to preserve the secrecy of confidential information and/or trade secrets of their former employers. Some former employers monitor compliance with these obligations. For example, a former employer of three of our current

employees, one of whom is one of our executive officers, contacted us seeking assurance that its ex-employees were honoring their confidentiality obligations to the former employer. We also received a similar inquiry from the former employers of two other employees. In both instances, we believe that we have provided such former employers with such assurance. While we have policies and procedures in place to guard against the risk of breach by our employees of confidentiality obligations to their former employers, there can be no assurance that a former employer of one or more of our employees will not allege a breach and seek compensation for alleged damages. If such a former employer were to successfully bring such a claim, our know-how and/or skills base could be restricted and our ability to produce certain products and/or to continue certain business activities could be affected, to the detriment of our financial condition, results of operations, business and/or prospects.

We may potentially be subject to concentration of credit risk related to our cash equivalents.

We may potentially be exposed to losses in the event of nonperformance by the financial counterparties to our cash equivalent investments. This risk may be heightened as a result of the current financial crisis and volatility in the markets. We manage the concentration risk by making investments that comply with our investment policy. Currently, our cash equivalents are invested in exchange traded money market mutual funds. Although we do not currently believe the principal amounts of these investments are subject to any material risk of loss, the recent volatility in the financial markets is likely to significantly impact the investment income we receive from these investments. In general, increases of credit risk related to our cash equivalents could have a material adverse effect on our financial condition, results of operations, business and/or prospects.

Our credit facilities contain covenants that impose significant restrictions on us.

We have entered into a senior credit facility and a cash-collateralized letter of credit facility, in each case, with a syndicate of financial institutions. We have the capacity to incur substantial indebtedness under the senior credit facility. Furthermore, the credit agreements contain covenants that restrict our ability to make certain distributions with respect to our capital stock, prepay other debt, encumber our assets, incur additional indebtedness, engage in business combinations and undertake various other corporate activities. These covenants require us also to maintain certain specified financial ratios, including those relating to net leverage and fixed charge coverage.

Our failure to comply with any of these covenants could result in the acceleration of our outstanding indebtedness, if any, under these facilities. If such acceleration occurs, we would be required to repay our indebtedness, and we may not have the ability to do so or the ability to refinance our indebtedness. Even if new financing is made available to us, it may not be available on acceptable or reasonable terms. An acceleration of our indebtedness could impair our ability to operate as a going concern.

We may face significant warranty claims.

Our DSS products are generally sold with a standard warranty for technical defects for a period equal to the shorter of: (i) twelve months from the date of acceptance by the customer; or (ii) fifteen months from the date of shipment. We provide longer warranty coverage in our polysilicon business, typically covering a period not exceeding twenty-four months from delivery. The warranty is typically provided on a repair or replace basis, and is not limited to products or parts manufactured by us. As a result, we bear the risk of warranty claims on all products we supply, including equipment and component parts manufactured by third parties. Our warranty expenses were approximately \$0.4 million for the nine months ended December 26, 2009, \$2.3 million for the fiscal year ended March 28, 2009, \$1.9 million for the fiscal year ended March 31, 2008 and \$0.9 million for the fiscal year ended March 31, 2007. There can be no assurance that we will be successful in claiming under any warranty or indemnity provided to us by our suppliers in the event of a successful warranty claim against us by a

customer or that any recovery from such supplier would be adequate. There is a risk that warranty claims made against us could have a material adverse effect on our financial condition, results of operations, business and/or prospects.

Exchange rate fluctuations may make our products less attractive to non-U.S. customers and otherwise have a negative impact on our operating results.

Our reporting currency is the U.S. dollar and almost all of our contracts are denominated in U.S. dollars. However, approximately 97%, 98%, 99% and 90% of our revenue was generated from sales to customers located outside the United States in the nine months ended December 26, 2009 and the fiscal years ended March 28, 2009, March 31, 2008 and March 31, 2007 respectively, and we expect that a large percentage of our future revenue will continue to be derived from sales to customers located outside the United States. Changes in exchange rates between foreign currencies and the U.S. dollar could make our products less attractive to non-U.S. customers and therefore decrease our sales and gross margins. In addition, we incur costs in the local currency of the countries outside the United States in which we operate and as a result are subject to currency translation risk. Exchange rates between a number of foreign currencies and the U.S. dollar have fluctuated significantly over the last few years and future exchange rate fluctuations may occur. Our largest foreign currency exposure is the euro. In order to mitigate foreign currency fluctuations, we typically enter into forward foreign exchange contracts to hedge portions of equipment purchases from vendors located primarily in Europe. Due to recent delays in deliveries requested by our polysilicon customers, we began negotiations with vendors to delay deliveries under certain of our inventory purchase commitments. As a result, during the nine months ended December 26, 2009, certain of our forward foreign exchange contracts to purchase euros no longer qualified as cash flow hedges because the hedging relationship was no longer deemed to be highly effective. We entered into offsetting forward foreign exchange contracts to sell euros to mitigate any further foreign exchange risk related to those foreign exchange contracts. As a result, we had euro denominated purchase commitments of approximately €31.7 million, net of advances on inventory purchases and available euros in our ending cash balances that were unhedged at December 26, 2009. Once negotiations with these vendors have been finalized, we will evaluate whether or not to initiate new foreign forward exchange contracts against these purchase commitments. Our hedging activities may not be successful in reducing our exposure to foreign exchange rate fluctuations. Future exchange rate fluctuations may have a material adverse effect on our financial condition, results of operations, business and/or prospects.

An increase in interest rates or the reduced availability of financing could reduce the demand for our products.

Our customers may use debt or equity financing to purchase our products and otherwise run their businesses. As a result, an increase in interest rates or the reduced availability of financing in any of the markets in which our customers operate, including Europe, Asia and the United States, could make it difficult for existing and potential customers to secure the financing necessary to purchase our products. In addition, end users of photovoltaic products may depend on debt financing to fund the capital expenditures required to purchase and install photovoltaic applications. As a result, an increase in interest rates or the reduced availability of financing could make it difficult for end-users to secure necessary financing on favorable terms, or at all and therefore could reduce demand for photovoltaic products. Any such decrease in demand for photovoltaic products could, in turn, result in decreased demand for our products, which are used in the manufacture of photovoltaic products. Thus, an increase in interest rates or the reduced availability of financing could lower demand for our products, reduce our revenues and have a material adverse effect on our financial condition, results of operations, business and/or prospects.

We are subject to securities class action lawsuits that could adversely affect our business. This litigation, and potential similar or related litigation, could result in substantial damages and may divert management's time and attention from our business.

Beginning on August 1, 2008, a series of putative securities class action lawsuits were commenced in both the United States District Court for the District of New Hampshire, which has been consolidated in a single action under the caption *Braun et al. v. GT Solar International, Inc., et al.*, as well as New Hampshire state court in the Superior Court for Hillsborough County, Southern District, under the caption *Hamel v. GT Solar International, Inc., et al.*, alleging that we, certain of our officers and directors, the underwriters in our July 2008 initial public offering and others, including certain of our investors, violated various sections of the Securities Act. A derivative suit, captioned *Fan v. GT Solar Int'l, Inc., et al.*, was filed in New Hampshire state court on January 14, 2009 (the "derivative action"). The derivative complaint is asserted nominally on behalf of the Company against certain of the Company's directors and officers and alleges various claims for breach of fiduciary duty, unjust enrichment, abuse of control and gross mismanagement and is premised on the same purported misconduct alleged in the federal action. The complaints, among other things, allege that the registration statement for our July 2008 initial public offering contained material misstatements and omissions regarding our business relationship with LDK Solar, Ltd., one of our customers, JYT Corporation, one of our competitors, and certain of our products, including DSS furnaces. The lawsuits seek, among other things, unspecified compensatory damages plus rescission, interest, attorneys' fees and costs. All of the federal lawsuits have been consolidated. On September 22, 2009, the federal court denied the defendants' motion to dismiss the federal lawsuits. Following the court's denial of the motion, the parties submitted a proposed joint case management order which requires coordination of any discovery to be taken in the state class action with that taken in the federal class action. The court approved the motion on November 16, 2009 and the parties have exchanged initial discovery requests. The case management order provides for discovery to close on May 25, 2011.

We intend to defend these claims vigorously. Nonetheless, the lawsuits discussed above may result in costly and protracted litigation, which may require significant commitment of our financial and management resources and time. The ultimate outcome of any litigation is uncertain and could result in substantial damages. Either favorable or unfavorable outcomes could have a material negative impact on our financial condition or results of operations, due to defense costs, diversion of management resources and other factors. In addition, we may in the future be the target of securities class action lawsuits similar to those described above.

If we are not able to implement the requirements of Section 404 of the Sarbanes-Oxley Act in a timely manner or with adequate compliance, we may be subject to sanctions by regulatory authorities.

Section 404 of the Sarbanes-Oxley Act requires that we evaluate and determine the effectiveness of our internal control over financial reporting. We will be required to comply with the requirements of Section 404 in our Annual Report on Form 10-K for the fiscal year ended April 3, 2010. We will be evaluating our internal controls systems to allow management to report on, and our independent auditors to attest to, our internal controls. We will be performing the system and process evaluation and testing (and any necessary remediation) required to comply with the management certification and auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act. While we anticipate being able to implement requirements relating to internal controls and all other aspects of Section 404 by this deadline, we cannot be certain as to the timing of completion of our evaluation, testing and remediation actions or the impact of the same on our operations. If we are not able to implement the requirements of Section 404 in a timely manner or with adequate compliance, we may be subject to sanctions or investigation by regulatory authorities, such as the SEC or Nasdaq. Any such action could adversely affect our financial results or investors' confidence in us and could cause our stock price to fall. In addition, the controls and procedures that we will implement may not comply with all of the

relevant rules and regulations of the SEC and Nasdaq. If we fail to develop and maintain effective controls and procedures, we may be unable to provide financial information in a timely and reliable manner, subjecting us to sanctions and harm to our reputation.

New interpretations of existing accounting standards or the application of new standards could affect our revenue recognition and other accounting policies, which could have an adverse effect on the way we report our operating results.

Generally accepted accounting principles in the United States are subject to interpretations by the Financial Accounting Standards Board (“FASB”), the American Institute of Certified Public Accountants, the SEC and various other organizations formed to promulgate and interpret accounting principles. A change in these accounting principles or their interpretations could affect the reporting of transactions that were completed before the announcement of a change in principles of interpretations.

In October 2009, the FASB issued authoritative guidance that provides amendments to the revenue recognition criteria for separating consideration in multiple-deliverable revenue arrangements. It establishes a hierarchy of selling prices to determine the selling price of each specific deliverable which includes vendor-specific objective evidence (if available), third-party evidence (if vendor-specific evidence is not available), or estimated selling price if neither of the first two are available. This guidance also eliminates the residual method for allocating revenue between the elements of an arrangement and requires that arrangement consideration be allocated at the inception of the arrangement and expands the disclosure requirements regarding a vendor’s multiple-deliverable revenue arrangements. This guidance is effective for fiscal years beginning on or after June 15, 2010, and earlier adoption is permitted.

We are currently assessing the potential impact, if any, the adoption of this FASB guidance will have on our consolidated financial statements; however, at this time we are unable to quantify its impact on our consolidated financial statements and we are in the process of determining the timing and method of its adoption.

Risks Relating to Our Polysilicon Business

We license and do not own the technology underlying our CVD reactor and STC converter products.

The technology underlying our CVD reactor and STC converter products is not owned by us, but is licensed under a ninety-nine year license agreement that could be terminated in the event of a material breach by us of such agreement that remains uncured for more than thirty days, or upon our bankruptcy or insolvency. Any termination of our rights to use the technology underlying our CVD reactor and STC converter products would have a material adverse effect on our ability to offer our polysilicon products and therefore on our financial condition, results of operations, business and/or prospects. See the section titled “Business—Intellectual Property” in our Annual Report on Form 10-K for the fiscal year ended March 28, 2009 for further details on the agreement pursuant to which we have licensed the CVD reactor and STC converter technology.

Revenue recognition on sales of our CVD reactor and STC converter products may be affected by a number of factors, some of which are outside our control.

Revenue from sales of our CVD reactors and STC converters is recognized by us only upon customer acceptance in accordance with our revenue recognition policy. The timing of customer acceptance depends on many factors, some of which are outside our control. Acceptance of our polysilicon products does not occur until after they have been received by the customer, are operational and have performed satisfactorily in agreed upon tests. Due to the complexity of integrating the reactors into the customers’ plants, it is possible that there may be significant delays between our shipping the reactors and the reactors becoming operational and capable of being tested. There is

therefore a risk that we may be unable to recognize revenue on our existing orders in our backlog for polysilicon products in a timely manner or at all, even if we fully perform our obligations in respect of such orders in a timely manner. Delays in customer acceptance of such orders could adversely affect further demand for our reactors and STC converters, and may adversely affect our financial condition, results of operations, business and/or prospects.

Additionally, due to the nature of our CVD contracts, there continues to be a risk that if we fail to perform our obligations in respect of an order, such order may be terminated and/or we may be required to pay damages or refund all or a portion of the purchase price.

Our quarterly operating results may fluctuate significantly in the future as a result of our revenue recognition policy relating to our polysilicon products and the significant size of our individual contracts for polysilicon products.

The market for polysilicon has been cyclical, resulting in periods of insufficient or excess production capacity and could result in variation in demand for our products.

The market for polysilicon has been cyclical. Polysilicon supply has increased due to an increase in polysilicon production capacity as a result of new entrants to the polysilicon production industry during 2008 and 2009. Polysilicon supply has also increased due to a slowdown in the solar panel market. These factors, among others, have resulted in excess polysilicon manufacturing capacity and declining prices in polysilicon. An excess in production capacity for polysilicon could adversely affect demand for our CVD reactors and STC converters. A lack of demand for our CVD reactor and STC converter products could have a material adverse effect on our financial condition, results of operations, business and/or prospects. Conversely, if there are shortages of polysilicon in the future, the photovoltaic industry may be unable to continue to grow and/or may decline, and, as a result, demand for our solar products may decrease or may be eliminated.

Our polysilicon business faces direct and indirect competition.

We are not the only provider of polysilicon production equipment to the market. Further, the technology underlying our CVD reactor product is not the only known technology for producing polysilicon. Our CVD reactor is based on the Siemens process, which is a method whereby silicon depositions from silane or trichlorosilane, or TCS, gas are grown on heated rods inside a cooled bell jar. An alternative polysilicon production method is the fluidized bed reactor, or FBR, process, in which polysilicon is grown from hot polysilicon granules suspended in an upward flow of silane or TCS gas inside a specially designed chamber. A large scale FBR process has certain advantages over the Siemens process, including allowing for the continuous production and extraction of polysilicon, consuming less energy and being less labor intensive. There can be no assurance that the FBR process or other polysilicon growth technologies will not supersede the Siemens process as the most commonly used method of polysilicon production. If other technologies for producing polysilicon become more widely used or more widely available, demand for our CVD reactor product, and thus our financial condition, results of operations, business and/or prospects, may be adversely affected.

Existing direct competitors of our polysilicon business include two German companies and one Chinese company that we believe deliver CVD reactors based upon what we believe is a Siemens process reactor design. There can be no assurance that our polysilicon business will compete successfully with these companies. Although we believe our CVD reactor product to be distinct from the competing products offered by our competitors, there can be no assurance that our CVD reactor product will compete successfully with their products. If we are unable to compete successfully with these other products, it may have a material adverse effect on our financial condition, results of operations, business and/or prospects.

Polysilicon producers currently compete indirectly with our polysilicon business, as demand for our CVD reactor and converter products is likely to be adversely affected by increases in polysilicon supply. Announcements have indicated that major polysilicon producers, including Hemlock Semiconductor Corporation, Wacker Chemie AG, Renewable Energy Corporation ASA, MEMC Electronic Materials, Inc., M. Setak Company Ltd. and Tokuyama Corporation, may be planning increases in their polysilicon production capacity.

Our polysilicon business may also face competition from competitors of which we are not currently aware or which enter into competition with our polysilicon business in the future. Our competitors may have substantially greater financial, technical, manufacturing and other resources than us. Therefore, other manufacturers may have a competitive advantage because they can realize economies of scale, synergies and purchase certain raw materials and key components at lower prices. Our potential competitors may also have greater brand name recognition, more established distribution networks and larger customer bases, and may be able to devote more resources to the research, development, promotion and sale of their products or to respond more quickly to evolving industry standards and changes in market conditions. Our failure to adapt to changing market conditions and to compete successfully with existing or new competitors may have a material adverse effect on our financial condition, results of operations, business and/or prospects.

We rely upon a limited number of suppliers of key components and manufacturers for our polysilicon products.

We use specialist manufacturers to provide vessels and power supplies which are essential to the manufacture and operation of our polysilicon products. Although we currently use five vessel manufacturers and three power supply manufacturers, there can be no assurance that we will be successful in maintaining relationships with any supplier, or that any suppliers will perform as we expect. Our failure to obtain components that meet our quality, quantity and cost requirements in a timely manner could interrupt or impair our ability to manufacture CVD reactors and/or STC converters, and/or increase our costs. In particular, there is a risk that manufacturers being used by us for the CVD reactors may not be able to deliver our products to us in a sufficiently timely manner to enable us to fulfill our obligations to the customer. As a result, we may face breach of contract claims and our reputation may be harmed, which could interrupt or impair our ability to conduct and/or expand our polysilicon business and thereby have a material adverse effect on our financial condition, results of operations, business and/or prospects.

Risks Relating to the Photovoltaic Industry

We face competition from other manufacturers of equipment for photovoltaic products.

The solar energy industry and wider renewable energy industry are both highly competitive and continually evolving as participants strive to distinguish themselves within their niche markets and compete with the larger conventional electric power industry. In addition to solar equipment manufacturers, we face competition from companies producing and/or developing other photovoltaic technologies. Many of these competitors have, and future competitors may also have, substantially greater financial, technical, manufacturing and other resources than we do. These resources may provide these other manufacturers with a competitive advantage because they can realize economies of scale, synergies and purchase certain raw materials and key components at lower prices. Current and potential competitors of ours may also have greater brand name recognition, more established distribution networks and larger customer bases, and may be able to devote more resources to the research, development, promotion and sale of their products or to respond more quickly to evolving industry standards and changes in market conditions. Our failure to adapt to changing market conditions and to compete successfully with existing or new competitors may have a material adverse effect on our financial condition, results of operations, business and/or prospects.

Government subsidies and economic incentives for on-grid solar electricity applications could be reduced or eliminated.

Demand for photovoltaic equipment, including on-grid applications, has historically been dependent in part on the availability and size of government subsidies and economic incentives. Currently, the cost of solar electricity substantially exceeds the retail price of electricity in most major markets in the world. As a result, federal, state and local governmental bodies in many countries, most notably Germany, Italy, Spain, South Korea, Japan, China and the United States, have provided subsidies in the form of feed-in tariffs, rebates, tax write-offs and other incentives to end-users, distributors, systems integrators and/or manufacturers of photovoltaic products to promote the use of solar energy in on-grid applications and to reduce dependency on other forms of energy. Many of these government incentives are due to expire in time, phase out over time, cease upon exhaustion of the allocated funding and/or are subject to cancellation or non-renewal by the applicable authority. For example, Germany is considering a potential 15% reduction in their solar feed-in tariff rate for roof-top solar systems and the possible elimination of subsidies of ground-based solar systems on agricultural land. In Spain, which has also been a major market for photovoltaic products, the government has recently reduced subsidies from 2,400 MW per year to 500 MW of solar projects for 2009. The reduction, expiration or elimination of relevant government subsidies or other economic incentives may result in the diminished competitiveness of solar energy relative to conventional and other renewable sources of energy, and adversely affect demand for photovoltaic equipment or result in increased price competition, all of which could cause our sales and revenue to decline and have a material adverse effect on our financial condition, results of operations, business and/or prospects.

Further, any government subsidies and economic incentives could be reduced or eliminated altogether at any time and for any reason. Relevant statutes or regulations may be found to be anti-competitive, unconstitutional or may be amended or discontinued for other reasons. For example, the predecessor to Germany's Renewable Energy Act, or EEG, was challenged in Germany on constitutional grounds and in the European Court of Justice as impermissible state aid. Although such challenge was unsuccessful, new proceedings challenging the EEG or comparable minimum price regulations in other countries in which we conduct our business may be initiated. Amendments to the EEG are currently being discussed and there can be no assurance that subsidies and economic incentives under the EEG or other similar legislation in other countries will not be reduced or eliminated.

The reduction, expiration or elimination of relevant government subsidies or other economic incentives may result in the diminished competitiveness of solar energy relative to conventional and other renewable sources of energy, and adversely affect demand for photovoltaic equipment or result in increased price competition, all of which could cause our sales and revenue to decline and have a material adverse effect on our financial condition, results of operations, business and/or prospects.

Existing regulations and policies and changes to these regulations and policies may present technical, regulatory and economic barriers to the purchase and use of photovoltaic products.

The market for electricity generation products is heavily influenced by 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 are currently being modified and may be modified again in the future. These regulations and policies could deter end-user purchases of photovoltaic products and investment in the research and development of photovoltaic technology. For example, without a mandated regulatory exception for photovoltaic 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 end-users of photovoltaic systems and make such systems less attractive to potential customers,

which may have a material adverse effect on demand for our products and our financial condition, results of operations, business and/or prospects.

The photovoltaic industry may not be able to compete successfully with conventional power generation or other sources of renewable energy.

Although the photovoltaic industry has experienced substantial growth over the last five years, it still comprises a relatively small component of the total power generation market and competes with other sources of renewable energy, as well as conventional power generation. Many factors may affect the viability of widespread adoption of photovoltaic technology and thus demand for solar wafer manufacturing equipment, including the following:

- cost-effectiveness of solar energy compared to conventional power generation and other renewable energy sources;
- performance and reliability of solar modules compared to conventional power generation and other renewable energy sources and products;
- availability and size of government subsidies and incentives to support the development of the solar energy industry;
- success of other renewable energy generation technologies such as hydroelectric, wind, geothermal and biomass; and
- fluctuations in economic and market conditions that affect the viability of conventional power generation and other renewable energy sources, such as increases or decreases in the prices of oil and other fossil fuels.

As a result of any of the foregoing factors, our financial condition, results of operations, business and/or prospects could be materially adversely affected.

Technological changes in the photovoltaic industry could render existing products and technologies uncompetitive or obsolete.

The photovoltaic industry is rapidly evolving and is highly competitive. Technological advances may result in lower manufacturing costs for photovoltaic products and/or photovoltaic product manufacturing equipment, and may render existing photovoltaic products and/or photovoltaic product manufacturing equipment obsolete. We will therefore need to keep pace with technological advances in the industry, including committing resources to ongoing research and development, acquiring new technologies, continually improving our existing products and continually expanding and/or updating our product offering, in order to compete effectively in the future. Our failure to further refine our technology and/or develop and introduce new solar power products could cause our products to become uncompetitive or obsolete, which could adversely affect demand for our products, and our financial condition, results of operations, business and/or prospects.

Risks Relating to This Offering and Our Common Stock

Upon completion of this offering, the owners of our major stockholder, OCM and G3W, continue to have significant influence over all matters submitted to a stockholder vote, which limit the ability of other stockholders to influence corporate activities and may adversely affect the market price of our common stock.

Upon completion of this offering, GT Solar Holdings, LLC will own or control common stock representing, in the aggregate, a 56.1% voting interest in us, or 53.4% if the underwriters exercise their over-allotment option to purchase additional shares in full. Investment funds managed by OCM and G3W are the managing members and principal shareholders of GT Solar Holdings, LLC. As a result, OCM and G3W have substantial influence over the outcome of votes on all matters requiring approval

by our stockholders, including the election of directors, the adoption of amendments to our certificate of incorporation and by-laws and approval of significant corporate transactions. OCM and G3W can also take actions that have the effect of delaying or preventing a change in control of us or discouraging others from making tender offers for our shares, which could prevent stockholders from receiving a premium for their shares. These actions may be taken even if other stockholders oppose them. Moreover, this concentration of stock ownership may make it difficult for stockholders to replace management. In addition, this significant concentration of stock ownership may adversely affect the trading price for our common stock because investors often perceive disadvantages in owning stock in companies with controlling stockholders. This concentration of control could be disadvantageous to other stockholders with interests different from those of our officers, directors and principal stockholder and the trading price of shares of our common stock could be adversely affected.

Conflicts of interest may arise because some of our directors are principals of our principal stockholder.

One managing director and one vice president of OCM serve on our eight-member board of directors. OCM and its affiliates may invest in entities that directly or indirectly compete with us or companies in which they currently invest may begin competing with us. As a result of these relationships, when conflicts between the interests of OCM and the interests of our other stockholders arise, these directors may not be disinterested. Although our directors and officers have a duty of loyalty to us under Delaware law and our certificate of incorporation, transactions that we enter into in which a director or officer has a conflict of interest are generally permissible so long as (1) the material facts relating to the director's or officer's relationship or interest as to the transaction are disclosed to our board of directors and a majority of our disinterested directors, or a committee consisting solely of disinterested directors, approves the transaction, (2) the material facts relating to the director's or officer's relationship or interest as to the transaction are disclosed to our stockholders and a majority of our disinterested stockholders approves the transaction or (3) the transaction is otherwise fair to us.

OCM and its affiliates and investment funds do not have any duty to refrain from engaging directly or indirectly in the same or similar business activities or lines of business that we do.

Under our certificate of incorporation, none of OCM/GFI Power Opportunities Fund II, L.P., OCM/GFI Power Opportunities Fund II (Cayman), L.P. or any of their respective affiliates and investment funds (together an "OCM/GFI Entity"), nor any director, officer, stockholder, member, manager and/or employee of an OCM/GFI Entity, has any duty to refrain from engaging directly or indirectly in the same or similar business activities or lines of business that we do. In the event that any OCM/GFI Entity acquires knowledge of a potential transaction or matter which may be a corporate opportunity for itself and us, we will not have any expectancy in such corporate opportunity, and the OCM/GFI Entity will not have any duty to communicate or offer such corporate opportunity to us and may pursue or acquire such corporate opportunity for itself or direct such opportunity to another person. In addition, OCM/GFI's representatives will not be required to offer to us any transaction opportunity of which they become aware and could take any such opportunity for themselves or offer it to other companies in which they have an investment, unless such opportunity is expressly offered to them solely in their capacity as a director of ours.

Future sales of our common stock, or the perception in the public markets that these sales may occur, could depress our stock price.

Future sales of substantial amounts of our common stock in the public market or the perception that these sales could occur, could adversely affect the price of our common stock and could impair our ability to raise capital through the sale of additional equity securities. In addition, future equity financings could also result in dilution to our stockholders and new securities could have rights, preferences and privileges that are senior to those of the shares offered hereby.

Our certificate of incorporation currently authorizes us to issue up to 500 million shares of common stock, and as of February 23, 2010, we had approximately 143.7 million shares of common stock outstanding. Of these shares, approximately 38.1 million shares, and the shares of common stock sold in this offering, will be freely tradable, without restriction, in the public market. After the lockup agreements pertaining to this offering expire, an additional 80.6 million shares will be eligible for sale in the public market, subject to applicable manner of sale and other limitations with respect to shares held by our affiliates under Rule 144 under the Securities Act of 1933, as amended, or Securities Act. Following the expiration of the lock-up period, investment funds managed by OCM and G3W will have demand registration rights under the Securities Act with respect to the sale of its remaining shares. If this right is exercised and a large number of shares are sold, these holders could cause the price of our common stock to decline. Moreover, as of December 26, 2009, approximately 8.6 million shares of our common stock were issuable upon the exercise of outstanding vested and unvested options and upon vesting of restricted stock units.

Our certificate of incorporation and by-laws contain provisions that could discourage another company from acquiring us and may prevent attempts by our stockholders to replace or remove our current management.

Some provisions of our certificate of incorporation and by-laws may have the effect of delaying, discouraging or preventing a merger or acquisition that our stockholders may consider favorable, including transactions in which stockholders may receive a premium for their shares. In addition, these provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace or remove our board of directors. These provisions include:

- the removal of directors only by the affirmative vote of the holders of two-thirds of the shares of our capital stock entitled to vote;
- any vacancy on our board of directors, however occurring, including a vacancy resulting from an enlargement of the board, may only be filled by vote of the directors then in office;
- inability of stockholders to call special meetings of stockholders or take action by written consent;
- advance notice requirements for board nominations and proposing matters to be acted on by stockholders at stockholder meetings; and
- authorization of the issuance of “blank check” preferred stock without the need for action by stockholders.

Our common stock has only been publicly traded since July 24, 2008, and we expect that the price of our common stock may fluctuate substantially.

There has been a public market for our common stock only since July 24, 2008. Broad market, industry and economic factors may adversely affect the market price of our common stock, regardless of our actual operating performance. Factors that could cause fluctuations in our stock price may include, among other things:

- actual or anticipated variations in quarterly operating results;
- changes in market prices for our products or for our raw materials;
- changes in our financial guidance or estimates made by us or by any securities analysts who may cover our stock or our failure to meet the estimates made by securities analysts;
- changes in the market valuations of other companies operating in our industry;

- announcements by us or our competitors of significant acquisitions, strategic partnerships, divestitures or significant contracts;
- changes in governmental policies with respect to energy;
- additions or departures of key personnel; and
- sales of our common stock, including sales of our common stock by our directors and officers or by our principal stockholders.

Announcements of contract awards could have a significant impact on our stock price.

It is common in the photovoltaic sector for equipment manufacturers to enter into contracts for the sale and delivery of substantial amounts of equipment, involving highly competitive bidding situations. Public announcements of contract awards often cause a reaction in the stock market and affect, sometimes significantly, the trading price of the stock of the manufacturer that received a contract award. It could also have a negative effect on the trading price of stock of competitors that did not receive such contract. This reaction may be unrelated to the historical results of operations or financial condition of the affected companies or, in the case of unsuccessful competitors, any guidance they may have provided with respect to their future financial results. An announcement that a competitor of ours was awarded a significant customer contract could have a material adverse effect on the trading price of our stock.

Our quarterly operating results have fluctuated significantly in the past and we expect that our quarterly results will continue to fluctuate significantly in the future.

Our quarterly operating results have fluctuated significantly in the past and we expect that our quarterly results will continue to fluctuate significantly in the future. Future quarterly fluctuations may result from a number of factors, including:

- the size of new contracts and when we are able to recognize the related revenue, especially with respect to our polysilicon products;
- requests for delays in deliveries by our customers;
- delays in customer acceptances of our products;
- delays in deliveries from our vendors;
- our rate of progress in the fulfillment of our obligations under our contracts;
- the degree of market acceptance of our products and service offerings;
- the mix of products and services sold;
- budgeting cycles of our customers;
- product lifecycles;
- changes in demand for our products and services;
- the level and timing of expenses for product development and sales, general and administrative expenses;
- competition by existing and emerging competitors in the photovoltaic industry;
- announcements by our competitors or customers of the awarding of a significant contract;
- termination of contracts in our backlog;

- our success in developing and selling new products and services, controlling costs, attracting and retaining qualified personnel and expanding our sales force;
- changes in our strategy;
- foreign exchange fluctuations; and
- general economic conditions.

Based on these factors, we believe our future operating results will vary significantly from quarter-to-quarter and year-to-year. As a result, quarter-to-quarter and year-to-year comparisons of operating results are not necessarily meaningful nor do they indicate what our future performance will be.

We currently do not intend to pay dividends on our common stock and as a result, the only opportunity to achieve a return on an investment in our common stock is if the price appreciates.

On August 1, 2008 we paid a dividend in the aggregate amount of \$90.0 million to our then existing stockholders, including GT Solar Holdings, LLC. We currently do not expect to declare or pay dividends on our common stock in the foreseeable future. As a result, the only opportunity to achieve a return on an investment in our common stock will be if the market price of our common stock appreciates and the shares are sold at a profit. We cannot assure our investors that the market price for our common stock will ever exceed the price that was paid.

Our actual operating results may differ significantly from our guidance.

From time to time, we release guidance in our quarterly earnings releases, quarterly earnings conference call or otherwise, regarding our future performance that represent our management's estimates as of the date of release. This guidance, which includes forward-looking statements, is based on projections prepared by our management. These projections are not prepared with a view toward compliance with published guidelines of the American Institute of Certified Public Accountants, and neither our registered public accountants nor any other independent expert or outside party compiles or examines the projections and, accordingly, no such person expresses any opinion or any other form of assurance with respect thereto.

Projections are based upon a number of assumptions and estimates that, while presented with numerical specificity, are inherently subject to significant business, economic and competitive uncertainties and contingencies, many of which are beyond our control and are based upon specific assumptions with respect to future business decisions, some of which will change. We generally state possible outcomes as high and low ranges which are intended to provide a sensitivity analysis as variables are changed but are not intended to represent that actual results could not fall outside of the suggested ranges. The principal reason that we release guidance is to provide a basis for our management to discuss our business outlook with analysts and investors. We do not accept any responsibility for any projections or reports published by any such persons. Guidance is necessarily speculative in nature, and it can be expected that some or all of the assumptions of the guidance furnished by us will not materialize or will vary significantly from actual results. Accordingly, our guidance is only an estimate of what management believes is realizable as of the date of release. Actual results will vary from our guidance and the variations may be material. In light of the foregoing, investors are urged not to rely upon, or otherwise consider, our guidance in making an investment decision in respect of our common stock.

Any failure to successfully implement our operating strategy or the occurrence of any of the events or circumstances set forth in our "Risk Factors" in this prospectus supplement could result in the actual operating results being different from our guidance, and such differences may be adverse and material.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus supplement, the accompanying prospectus and the documents incorporated by reference herein and therein contain forward-looking statements that involve risks and uncertainties. These statements involve known and unknown risks, uncertainties and other factors that may cause our or our industry's actual results, levels of activity, performance or achievements to be materially different from the information expressed or implied by these forward looking statements.

In most cases, you can identify forward looking statements by the following words: "may," "will," "would," "should," "expect," "anticipate," "intend," "plan," "anticipate," "believe," "estimate," "predict," "potential," "continue," "on-going" or the negative of these terms or other comparable terminology, although not all forward-looking statements contain these words. You should consider statements that contain these words carefully because they describe our expectations, plans, strategies and goals and beliefs concerning future business conditions, our results of operations, financial position, and our business outlook or state other "forward-looking" information based on currently available information.

There are a number of important factors that could cause actual results to differ materially from the results anticipated by these forward-looking statements. These important factors include those that we discuss under the heading "Risk Factors" in this prospectus supplement and the following factors:

- the potential adverse impact of general economic conditions on demand for our products;
- current future credit and financial market conditions;
- the failure of amounts in our order backlog to result in actual revenue or to translate into profits;
- our dependence on a small number of customers;
- our dependence on the sale of a limited number of products;
- our dependence on a limited number of third party suppliers;
- product liability claims and/or claims in relation to third party equipment;
- loss of any of our management team or our inability to attract and retain key employees or integrate new employees into our management team;
- our inability to attract, train and retain technical personnel;
- our inability to protect our intellectual property and the possibility of litigation to protect our intellectual property rights;
- risks associated with the international nature of our business, including unfavorable political, regulatory, labor and tax conditions in foreign countries;
- compliance with legal systems in other countries in which we offer and sell our products;
- commercial, jurisdictional and legal risks associated with our business in China and the increase in those risks as we expand our operations in China;
- claims relating to the infringement, misappropriation or other violation of proprietary manufacturing expertise, technological innovation and other intellectual property rights;
- concentration of credit risk related to our cash equivalents;
- our inability to comply with covenants in our credit facilities;
- our exposure to warranty claims;

- our exposure to exchange rate fluctuations;
- the effect of increases in interest rates or the reduced availability of financing on demand for our products;
- the securities class action lawsuits relating to our initial public offering;
- our inability to implement the requirements of Section 404 of the Sarbanes-Oxley Act in a timely manner;
- the impact that pending new revenue recognition accounting standards may have on our reported results;
- our lack of ownership of the technology underlying our CVD reactor and STC converter products;
- revenue recognition under our polysilicon contracts, which may be affected by a number of factors, some of which are outside our control;
- cyclicity in the market for polysilicon and variation in demand for products sold in our polysilicon business;
- direct and indirect competition for our polysilicon production equipment;
- our reliance on a limited number of suppliers and manufacturers for our polysilicon business;
- competition from other manufacturers of photovoltaic products;
- the loss of government subsidies or economic incentives for on-grid solar electricity applications;
- existing regulations and policies or changes to regulations and policies relating to the electric utility industry;
- inability of the photovoltaic industry to compete successfully with conventional power generation or other sources of renewable energy; and
- technological changes in the photovoltaic industry that render existing products and technologies uncompetitive or obsolete.

The foregoing factors should not be construed as exhaustive and should be read in conjunction with the other statements that are included under the heading “Risk Factors” in this prospectus supplement.

You should read the risk factors and the other cautionary statements contained or incorporated by reference into this prospectus supplement and the accompanying prospectus as being applicable to all related forward looking statements wherever they appear in this prospectus supplement, the accompanying prospectus or in any document incorporated by reference herein or therein. We cannot assure you that the forward-looking statements contained or incorporated by reference into this prospectus supplement and the accompanying prospectus will prove to be accurate. Furthermore, if our forward-looking statements prove to be inaccurate, the inaccuracy may be material. In light of the significant uncertainties in these forward-looking statements, you should not regard these statements as a representation or warranty by us or any other person that we will achieve our objectives and plans in any specified time frame, if at all.

The forward-looking statements contained or incorporated by reference into this prospectus supplement and the accompanying prospectus relate only to events as of the date on which the statements are made. We undertake no obligation to update any forward-looking statement to reflect events or circumstances after the date on which the statement is made or to reflect the occurrence of unanticipated events, except to the extent required by applicable securities law.

SELLING STOCKHOLDER

Beneficial Ownership

The following table sets forth information with respect to the beneficial ownership of our common stock held as of February 23, 2010 by the selling stockholder, the number of shares being offered hereby and information with respect to shares to be beneficially owned by the selling stockholder assuming all the shares covered by this prospectus supplement are sold (assuming no exercise of the underwriters' over-allotment option). The percentages in the following table reflect the shares beneficially owned by the selling stockholder as a percentage of the total number of shares of our common stock outstanding as of February 23, 2010.

Name	Shares Beneficially Owned Prior to Offering		Shares Offered Hereby	Shares Beneficially Owned After the Offering(1)	
	Number	Percentage		Number	Percentage
GT Solar Holdings, LLC(2)	105,538,149	73.5%	25,000,000	80,538,149	56.1%

- (1) Assumes that the selling stockholder disposes of all the shares of common stock covered by this prospectus supplement (assuming no exercise of the underwriters' over-allotment option) and does not acquire beneficial ownership of any additional shares.
- (2) All of the shares reported are directly owned by GT Solar Holdings, LLC. OCM/GFI Power Opportunities Fund II, L.P., or the "Main Fund," and OCM/GFI Power Opportunities II (Cayman), L.P. ("Cayman Fund" and together with the Main Fund, "OCM/GFI Funds") are together the managing member of GT Solar Holdings, LLC. Each of Oaktree Capital Management, L.P., or "OCM," and G3W Ventures LLC, or "G3W," is an investment manager of each of the OCM/GFI Funds. As a result, each of the OCM/GFI Funds, OCM and G3W may be deemed to have beneficial ownership of the shares owned by GT Solar Holdings, LLC. Oaktree Capital Group Holdings GP, LLC or "Oaktree Group," ultimately controls OCM. Oaktree Group is a limited liability company managed by Howard S. Marks, Bruce A. Karsh, Sheldon M. Stone, Larry W. Keele, Stephen A. Kaplan, John B. Frank, David Kirchheimer and Kevin L. Clayton. Voting and investment power with respect to securities owned by the OCM/GFI Funds is exercised by a four-person committee, composed of two representatives of OCM (any of Messrs. Stephen A. Kaplan, Michael P. Harmon, Bruce A. Karsh and Howard S. Marks) and two representatives of G3W (any of Messrs. Lawrence D. Gilson, Richard K. Landers and Ian A. Schapiro). The OCM/GFI Funds, G3W, OCM, Oaktree Group and all such individuals expressly disclaim beneficial ownership of the shares held by GT Solar Holdings, LLC, except to the extent of their respective pecuniary interests therein. The address for OCM, Oaktree Group and Messrs. Marks, Karsh, Stone, Keele, Kaplan, Frank, Kirchheimer, Clayton and Harmon is c/o Oaktree Capital Management, L.P., 333 South Grand Avenue, 28th floor, Los Angeles, California 90071. The address for each of GT Solar Holdings, LLC, G3W, the OCM/GFI Funds and Messrs. Landers, Gilson and Schapiro is c/o G3W Ventures LLC, 11611 San Vicente Blvd., Suite 710, Los Angeles, California 90049.

Material Relationships

Director Restricted Stock Unit Awards. On February 9, 2010, our board of directors approved a restricted stock unit award for R. Chad Van Sweden, who joined our board of directors in December 2009. These restricted stock units will vest one year from the date of grant. At the request of Mr. Van Sweden, the restricted stock units awarded for service by Mr. Van Sweden were issued to Oaktree Capital Management, L.P. in lieu of issuing restricted stock units to Mr. Van Sweden.

Directors and Officers. J. Bradford Forth, a managing member of Oaktree Capital Management, L.P., and R. Chad Van Sweden, a vice president of Oaktree Capital Management, L.P.,

are members of our board of directors. For a description of the ownership of Oaktree Capital Management, L.P., see footnote (2) to the table under the heading “Selling Stockholder—Beneficial Ownership.”

For a description of other material relationships between us and the Selling Stockholder, please see “Selling Stockholder—Material Relationships” in the accompanying prospectus.

USE OF PROCEEDS

All of the shares of common stock covered by this prospectus supplement are being sold by the selling stockholder named in this prospectus supplement. The selling stockholder will use the net proceeds it receives in connection with this offering to make a distribution to its shareholders. We will not receive any of the proceeds from the sale of shares in this offering, including from any exercise by the underwriters of their over-allotment option. We will pay the expenses of this offering, other than the underwriters’ discounts and commissions.

DIVIDEND POLICY

On June 30, 2008, we declared a cash dividend of approximately \$90 million to our stockholders of record as of June 30, 2008, including GT Solar Holdings, LLC. That dividend was paid on August 1, 2008. We do not intend to pay any other dividends on our common stock for the foreseeable future. Our credit facilities place restrictions on our ability and the ability of our subsidiaries to pay cash dividends.

DESCRIPTION OF CAPITAL STOCK

General Matters

Our authorized capital stock consists of 500,000,000 shares of common stock, \$0.01 par value per share, and 10,000,000 shares of preferred stock, \$0.01 par value per share. As of February 23, 2010, 143,685,545 shares of common stock were issued and outstanding and no shares of preferred stock were outstanding. The discussion set forth below describes the most important terms of our capital stock, certificate of incorporation and by-laws. Because it is only a summary, it does not contain all the information that may be important to you. For a complete description you should refer to our certificate of incorporation and by-laws, copies of which have been filed as exhibits to our Quarterly Report on Form 10-Q for the quarter ended June 28, 2008 filed on August 27, 2008.

Common Stock

All of our outstanding common stock is fully paid and nonassessable. Set forth below is a brief discussion of the principal terms of our common stock:

Dividend Rights. Subject to preferences that may apply to shares of preferred stock outstanding at the time, holders of outstanding shares of common stock are entitled to receive dividends out of assets legally available at the times and in the amounts as the board of directors may from time to time determine. For more information, see “Dividend Policy.”

Voting Rights. Each outstanding share of our common stock is entitled to one vote on all matters submitted to a vote of stockholders.

Preemptive or Similar Rights. Our common stock is not entitled to preemptive or other similar subscription rights to purchase any of our securities.

Conversion Rights. Our common stock is not convertible.

Right to Receive Liquidation Distributions. Upon our liquidation, dissolution or winding up, the holders of our common stock are entitled to receive pro rata our assets which are legally available for distribution, after payment of all debts and other liabilities and subject to the prior rights of any holders of preferred stock then outstanding.

Nasdaq Listing. Our common stock is listed on the Nasdaq Global Select Market under the symbol “SOLR.”

Preferred Stock

Our board of directors may, without further action by our stockholders, from time to time, direct the issuance of up to 10,000,000 shares of preferred stock in series and may, at the time of issuance, determine the rights, preferences and limitations of each series. Satisfaction of any dividend preferences of outstanding shares of preferred stock would reduce the amount of funds available for the payment of dividends on shares of common stock. Holders of shares of preferred stock may be entitled to receive a preference payment in the event of our liquidation, dissolution or winding-up before any payment is made to the holders of shares of common stock. Under specified circumstances, the issuance of shares of preferred stock may render more difficult or tend to discourage a merger, tender offer or proxy contest, the assumption of control by a holder of a large block of our securities or the removal of incumbent management. Upon the affirmative vote of a majority of the total number of directors then in office, the board of directors, without stockholder approval, may issue shares of preferred stock with voting and conversion rights which could adversely affect the holders of shares of common stock. Upon consummation of the offering, there will be no shares of preferred stock outstanding, and we have no present intention to issue any shares of preferred stock.

Anti-takeover Effects of our Certificate of Incorporation and By-laws

Our certificate of incorporation and by-laws contain certain provisions that are intended to enhance the likelihood of continuity and stability in the composition of the board of directors and which may have the effect of delaying, deferring or preventing a future takeover or change in control of the company unless such takeover or change in control is approved by the board of directors.

Removal and Appointment of Directors. Our certificate of incorporation provides that our directors may only be removed by the affirmative vote of the holders of two-thirds of the shares of our capital stock entitled to vote. In addition, provisions of our certificate of incorporation and bylaws authorize the board of directors to fill vacant directorships or increase the size of the board of directors pursuant to a resolution adopted by a majority of the board of directors. These provisions may deter a stockholder from removing incumbent directors and simultaneously gaining control of the board of directors by filling the vacancies created by this removal with its own nominees.

Action by Written Consent; Special Meetings of Stockholders. Our certificate of incorporation provides that stockholder action can be taken only at an annual or special meeting of stockholders and cannot be taken by written consent in lieu of a meeting. Our certificate of incorporation and the by-laws provide that, except as otherwise required by law, special meetings of the stockholders can only be called by the chairman of the board or our chief executive officer, or pursuant to a resolution adopted by a majority of the board of directors. Stockholders are not permitted to call a special meeting or to require the board of directors to call a special meeting.

Advance Notice Procedures. Our by-laws establish an advance notice procedure for stockholder proposals to be brought before an annual meeting of our stockholders, including proposed nominations of persons for election to the board of directors. Stockholders at an annual meeting may only consider proposals or nominations specified in the notice of meeting or brought before the meeting by or at the direction of the board of directors or by a stockholder who was a stockholder of record on the record

date for the meeting, who is entitled to vote at the meeting and who has given our Secretary timely written notice, in proper form, of the stockholder's intention to bring that business before the meeting.

In the case of an annual meeting of stockholders, notice by a stockholder, in order to be timely, must be received at our principal executive offices not less than 90, or more than 120, days prior to the anniversary date of the immediately preceding annual meeting of stockholders. In the event that the annual meeting is called for a date that is not within 30 days before or 60 days after the anniversary date, in order to be timely, notice by a stockholder must be received not later than the later of 100 days prior to the annual meeting of stockholders or the tenth day following the date on which notice of the annual meeting was mailed or public disclosure of the date of the annual meeting was made.

In the case of a special meeting of stockholders called for the purpose of electing directors, notice by the stockholder, in order to be timely, must be received not less than 90, or more than 120, days prior to the date of the special meeting. In the event that public announcement of the special meeting is less than 100 days prior to the date of the special meeting, notice by the stockholder, in order to be timely, must be received not later than the tenth day following the date on which notice of the date of the special meeting was mailed or public disclosure of the date of the special meeting was made.

Although the by-laws do not give the board of directors the power to approve or disapprove stockholder nominations of candidates or proposals regarding other business to be conducted at a special or annual meeting, the by-laws may have the effect of precluding the conduct of certain business at a meeting if the proper procedures are not followed or may discourage or defer a potential acquiror from conducting a solicitation of proxies to elect its own slate of directors or otherwise attempting to obtain control of the company.

Authorized but Unissued Shares. Our authorized but unissued shares of common stock and preferred stock are available for future issuance without stockholder approval. These additional shares may be utilized for a variety of corporate purposes, including future public offerings to raise additional capital, corporate acquisitions and employee benefit plans. The existence of authorized but unissued shares of common stock and preferred stock could render more difficult or discourage an attempt to obtain control of a majority of our common stock by means of a proxy contest, tender offer, merger or otherwise.

Anti-takeover Effects of Delaware Law

We are subject to the provisions of Section 203 of the Delaware General Corporation Law. Section 203 provides that, subject to exceptions specified therein, an "interested stockholder" of a Delaware corporation shall not engage in any "business combination," including general mergers or consolidations or acquisitions of additional shares of the corporation, with the corporation for a three-year period following the time that such stockholder becomes an interested stockholder unless:

- prior to such time, the board of directors of the corporation approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder;
- upon consummation of the transaction which resulted in the stockholder becoming an "interested stockholder," the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced (excluding specified shares); or
- on or subsequent to such time, the business combination is approved by the board of directors of the corporation and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least 66 $\frac{2}{3}$ % percent of the outstanding voting stock not owned by the interested stockholder.

Under Section 203, the restrictions described above also do not apply to specified business combinations proposed by an interested stockholder following the announcement or notification of one of specified transactions involving the corporation and a person who had not been an interested stockholder during the previous three years or who became an interested stockholder with the approval of a majority of the corporation's directors, if such transaction is approved or not opposed by a majority of the directors who were directors prior to any person becoming an interested stockholder during the previous three years or were recommended for election or elected to succeed such directors by a majority of such directors.

Except as otherwise specified in Section 203, an "interested stockholder" is defined to include:

- any person that is the owner of 15% or more of the outstanding voting stock of the corporation, or is an affiliate or associate of the corporation and was the owner of 15% or more of the outstanding voting stock of the corporation at any time within three years immediately prior to the date of determination; and
- the affiliates and associates of any such person.

Under some circumstances, Section 203 makes it more difficult for a person who would be an interested stockholder to effect various business combinations with a corporation for a three-year period.

Corporate Opportunities and Transactions with G3W

In recognition that directors, officers, stockholders, members, managers and/or employees of G3W and its affiliates and investment funds (each referred to in this prospectus as an OCM/GFI Entity and collectively as the OCM/GFI Entities) may serve as our directors and/or officers and that the OCM/GFI Entities may engage in similar activities or lines of business that we do, our certificate of incorporation provides for the allocation of certain corporate opportunities between us and the OCM/GFI Entities. Specifically, none of the OCM/GFI Entities or any director, officer, stockholder, member, manager or employee of an OCM/GFI Entity has any duty to refrain from engaging directly or indirectly in the same or similar business activities or lines of business that we do. In the event that any OCM/GFI Entity acquires knowledge of a potential transaction or matter which may be a corporate opportunity for itself and us, we will not have any expectancy in such corporate opportunity, and the OCM/GFI Entity will not have any duty to communicate or offer such corporate opportunity to us and may pursue or acquire such corporate opportunity for itself or direct such opportunity to another person. In addition, if a director or officer of us who is also a director, officer, member, manager or employee of any OCM/GFI Entity acquires knowledge of a potential transaction or matter which may be a corporate opportunity for us and an OCM/GFI Entity, we will not have any expectancy in such corporate opportunity unless such corporate opportunity is expressly offered to such person solely in his or her capacity as a director or officer of us.

In recognition that we may engage in material business transactions with the OCM/GFI Entities from which we are expected to benefit, our certificate of incorporation provides that any of our directors or officers who are also directors, officers, stockholders, members, managers and/or employees of any OCM/GFI Entity will have fully satisfied and fulfilled his or her fiduciary duty to us and our stockholders with respect to such transaction, if:

- the transaction was approved, after being made aware of the material facts of the relationship between us and the OCM/GFI Entity and the material terms and facts of the transaction, by (1) an affirmative vote of a majority of the members of our board of directors who do not have a material financial interest in the transaction or (2) an affirmative vote of a majority of the members of a committee of our board of directors consisting of members who do not have a material financial interest in the transaction; or

- the transaction was fair to us at the time we entered into the transaction; or
- the transaction was approved by an affirmative vote of the holders of a majority of shares of our common stock entitled to vote, excluding the OCM/GFI Entities and any holder who has a material financial interest in the transaction.

These provisions of our certificate of incorporation are permitted by Section 122 of the Delaware General Corporation Law, and, accordingly, we and all of our stockholders will be subject to them. Any amendment to the foregoing provisions of our certificate of incorporation will require the affirmative vote of at least 66 $\frac{2}{3}$ % of the voting power of all shares of our common stock then outstanding.

Transfer Agent and Registrar

Our transfer agent and registrar for our common stock is BNY Mellon Investor Services LLC.

MATERIAL U.S. FEDERAL INCOME AND ESTATE TAX CONSIDERATIONS

The following is a general discussion of the material U.S. federal income and estate tax considerations to holders of our common stock. This discussion is a summary and does not consider all aspects of U.S. federal income taxation that may be relevant to holders in light of their particular investment circumstances or to certain types of holders subject to special tax rules, including partnerships and other entities treated as partnerships for U.S. federal income tax purposes, banks, financial institutions or other financial services entities, broker-dealers, insurance companies, tax-exempt organizations, regulated investment companies, real estate investment trusts, retirement plans, individual retirement accounts or other tax-deferred accounts, persons who use or are required to use mark-to-market accounting, persons that hold shares of our common stock as part of a “straddle,” a “hedge” or a “conversion transaction,” investors in partnerships and other pass-through entities, U.S. Holders (as defined below) with a functional currency other than the U.S. dollar, non-U.S. Holders engaged in a U.S. trade or business that use a functional currency other than the U.S. dollar, persons to whom the constructive sale or constructive ownership rules apply, certain former citizens or permanent residents of the U.S., individuals who reside in, and entities created or organized under the laws of, any territory or possession of the U.S. and persons subject to the alternative minimum tax. This discussion also contains only a limited and general discussion of U.S. estate tax considerations and does not address any non-U.S. tax considerations or any U.S. federal gift, state or local tax considerations. This discussion assumes that holders hold their shares as “capital assets” within the meaning of Section 1221 of the U.S. Internal Revenue Code of 1986, as amended (the “Code”) (generally, for investment). This discussion is based on the Code and applicable U.S. Treasury Regulations, rulings, administrative pronouncements and decisions as of the date hereof, all of which are subject to change or differing interpretations at any time with possible retroactive effect.

For purposes of this discussion, a “U.S. Holder” is a beneficial owner of shares of our common stock (other than a partnership) that is:

- a citizen or individual resident of the United States,
- a corporation (or entity treated as a corporation for U.S. federal income tax purposes) created or organized, or treated as created or organized, in or under the laws of the U.S., any State thereof or the District of Columbia,
- an estate the income of which is subject to U.S. federal income taxation regardless of its source, or
- a trust (1) if a court within the U.S. is able to exercise primary supervision over the trust’s administration and one or more U.S. persons have authority to control all substantial decisions

of the trust or (2) that has a valid election in effect under applicable Treasury Regulations to be treated as a U.S. person.

For purposes of this discussion, a “Non-U.S. Holder” is a beneficial owner of our common shares that does not qualify as a U.S. Holder under the definition above.

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

EACH HOLDER IS URGED TO CONSULT ITS TAX ADVISOR REGARDING THE SPECIFIC U.S. FEDERAL, STATE AND LOCAL AND NON-U.S. TAX CONSIDERATIONS OF OWNING AND DISPOSING OF OUR COMMON STOCK.

Consequences to U.S. Holders

Dividends

As discussed under the section entitled “Dividend Policy” above, we do not currently anticipate paying any dividends for the foreseeable future. In the event that we do make a distribution of cash or property with respect to our common stock, any such distribution will be taxable as a dividend for U.S. federal income tax purposes to the extent paid from our current or accumulated earnings and profits (as determined under U.S. federal income tax principles).

A U.S. Holder generally will be subject to U.S. federal income tax on any dividends received in respect of our common stock at a maximum federal income tax rate of 15% if the U.S. Holder is an individual and certain holding period and other requirements are satisfied, and a maximum federal income tax rate of 35% otherwise (subject to any applicable dividends received deduction in the case of a corporate U.S. Holder). If the amount of a distribution exceeds our current and accumulated earnings and profits, such excess will be allocated ratably among each share of common stock with respect to which the distribution is paid and treated first as a tax-free return of capital to the extent of the U.S. Holder’s adjusted tax basis in each such share, and thereafter as capital gain from a sale or other disposition of each such share of common stock that is taxed to the U.S. Holders as described below.

Under current law, the 15% maximum federal income tax rate on certain dividends received by individual U.S. Holders and the 35% maximum federal income tax rate on other dividends received by individual U.S. Holders are scheduled to expire effective for taxable years beginning after December 31, 2010, and dividends received by individuals in subsequent taxable years are scheduled to be taxed at a maximum federal income tax rate of 39.6%.

Gain on Disposition of Common Stock

A U.S. Holder that sells or otherwise disposes of our common stock in a taxable transaction will recognize capital gain or loss equal to the amount of cash plus the fair market value of property received in exchange for the common stock minus the U.S. Holder’s adjusted tax basis in the common stock. Any capital gain or loss recognized by the U.S. Holder will be long-term capital gain or loss if the U.S. Holder has held our common stock for more than one year at the time of the sale or other disposition and short-term capital gain or loss otherwise. Long-term capital gains recognized by non-corporate taxpayers are taxable under current law at a maximum federal income tax rate of 15%. Long-term capital gains recognized by corporations and short-term capital gains recognized by corporations or individuals are taxable under current law at a maximum federal income tax rate of 35%. A U.S. Holder’s ability to use any capital loss to offset other income or gain is subject to certain limitations.

Under current law, for taxable years beginning after December 31, 2010, the maximum federal income tax rate applicable to long-term capital gains is scheduled to increase to 20% for non-corporate taxpayers and the maximum federal income tax rate applicable to short-term capital gains is scheduled to increase to 39.6% for non-corporate taxpayers.

Consequences to Non-U.S. Holders

Dividends

A Non-U.S. Holder generally will be subject to U.S. federal income tax on any dividends received in respect of our common stock at a 30% rate (or such lower rate as prescribed by an applicable income tax treaty as discussed below) unless the dividend is effectively connected with the conduct of a U.S. trade or business. As discussed below, this tax is generally collected through withholding on the dividend payment to the Non-U.S. Holder.

If a Non-U.S. Holder receives a dividend that is effectively connected with the conduct of a U.S. trade or business, then the dividend payment will not be subject to withholding (provided that the certification requirements described below are satisfied). However, the dividends received by the Non-U.S. Holder will be subject to tax under current law at a maximum federal income tax rate of 15% if the Non-U.S. Holder is an individual and certain holding period and other requirements are satisfied, and a maximum federal income tax rate of 35% otherwise. A Non-U.S. Holder that is a corporation may also be subject to a 30% federal branch profits tax on after-tax profits effectively connected with a U.S. trade or business to the extent that such after-tax profits are not reinvested and maintained in a U.S. business.

If the amount of a distribution exceeds our current and accumulated earnings and profits, such excess will be allocated ratably among each share of common stock with respect to which the distribution is paid and treated first as a tax-free return of capital to the extent of the Non-U.S. Holder's adjusted tax basis in each such share, and thereafter as capital gain from a sale or other disposition of each such share of common stock that is taxed to the Non-U.S. Holders as described below.

Under current law, the 15% maximum federal income tax rate on certain dividends received by individual Non-U.S. Holders that are effectively connected with the conduct of a U.S. trade or business and the 35% maximum federal income tax rate on other dividends received by individual Non-U.S. Holders and effectively connected with the conduct of a U.S. trade or business are scheduled to expire effective for taxable years beginning after December 31, 2010, and dividends received in subsequent taxable years by individual Non-U.S. Holders and effectively connected with the conduct of a U.S. trade or business are scheduled to be taxed at a maximum federal income tax rate of 39.6%.

Gain on Disposition of Common Stock

A Non-U.S. Holder that sells or otherwise disposes of our common stock in a taxable transaction generally will not be subject to U.S. federal income taxation unless:

- gain resulting from the disposition is effectively connected with the conduct of a U.S. trade or business;
- the Non-U.S. Holder is an individual who is present in the U.S. for 183 days or more in the taxable year of disposition, if certain other conditions are met; or
- we are or have been a U.S. real property holding corporation, or USRPHC, as defined in Section 897 of the Code at any time within the five-year period preceding the disposition or the Non-U.S. Holder's holding period, whichever is shorter, and either the Non-U.S. Holder owned more than 5% of our common stock at any time within that period or our common stock has

ceased to be traded on an established securities market prior to the beginning of the calendar year in which the disposition occurs.

In general, a corporation is a USRPHC if the fair market value of its “U.S. real property interests” equals or exceeds 50% of the sum of the fair market value of its worldwide (domestic and foreign) real property interests and its other assets used or held for use in a trade or business. We believe that we are not a USRPHC on the date hereof and currently do not anticipate becoming a USRPHC.

If a Non-U.S. Holder’s gain is effectively connected with a U.S. trade or business or is subject to tax under the USRPHC rules, the Non-U.S. Holder generally will be taxable in the same manner as a U.S. Holder, although in the former case, a Non-U.S. Holder that is a corporation may also be subject to a 30% branch profits tax on after-tax profits effectively connected with a U.S. trade or business to the extent that such after-tax profits are not reinvested and maintained in the U.S. business. A Non-U.S. Holder’s ability to use any capital loss to offset other income or gain subject to U.S. federal income taxation is subject to certain limitations.

Under certain circumstances, an individual Non-U.S. Holder who is present in the U.S. for 183 days or more in the individual’s taxable year in which the sale or other disposition of our common stock occurs may be subject to a 30 percent tax on the gross amount of the gain on such sale or disposition unless such gain is already subject to tax as effectively connected with the conduct of a U.S. trade or business. In this case, the Non-U.S. Holder’s ability to use other losses to offset the gain on our common stock will be limited.

Income Tax Treaties

If a Non-U.S. Holder is eligible for treaty benefits under an income tax treaty entered into by the U.S., the Non-U.S. Holder may be able to reduce or eliminate certain of the U.S. federal income taxes discussed above, such as the tax on dividends and the branch profits tax, and the Non-U.S. Holder may be able to treat gain, even if effectively connected with a U.S. trade or business, as not subject to U.S. federal income taxation unless the U.S. trade or business is conducted through a permanent establishment located in the U.S. Non-U.S. Holders are urged to consult their tax advisors regarding possible relief under an applicable income tax treaty.

Withholding and Information Reporting

A U.S. Holder or Non-U.S. Holder may be subject to backup withholding (currently at a rate of 28%) on the proceeds from a sale or other taxable disposition of our common stock and on the gross amount of any dividend or other distribution on our common stock unless the U.S. Holder or Non-U.S. Holder is exempt from backup withholding and, when required, demonstrates that status, or provides a correct taxpayer identification number on a form acceptable under U.S. Treasury Regulations (generally an IRS Form W-9, W-8BEN or W-8ECI) and otherwise complies with the applicable requirements of the backup withholding rules.

In addition, a Non-U.S. Holder will generally be subject to withholding at a rate of 30% of the gross amount of any dividend or other distribution on our common stock unless the Non-U.S. Holder qualifies for a reduced rate of withholding or an exemption from withholding under an applicable tax treaty or the dividend or other distribution is effectively connected with a U.S. trade or business (in which case the dividend or other distribution will be exempt from withholding but the Non-U.S. Holder will nonetheless be liable for any applicable U.S. federal income tax as described above). The Non-U.S. Holder would be required to demonstrate its qualification for a reduced rate of withholding or an exemption from withholding on a form acceptable under applicable U.S. Treasury Regulations (generally an IRS Form W-8BEN or W-8ECI).

We may also be required to comply with information reporting requirements under the Code with respect to the amount of any dividend or other distribution on our common stock and a broker may be required to comply with information reporting requirements with respect to the proceeds from a sale or other taxable disposition of our common stock.

Any amount withheld under the withholding rules of the Code (including backup withholding rules) is not an additional tax, but rather is credited against the holder's U.S. federal income tax liability. Holders are advised to consult their tax advisors to ensure compliance with the procedural requirements to reduce or avoid withholding (including backup withholding) or, if applicable, to file a claim for a refund of withheld amounts in excess of the holder's U.S. federal income tax liability.

Federal Estate Tax

Individual Non-U.S. Holders and entities the property of which is potentially includible in such an individual's gross estate for U.S. federal estate tax purposes (for example, a trust funded by such an individual and with respect to which the individual has retained certain interest or powers), should note that, absent an applicable treaty benefit, common stock will be treated as U.S. situs property subject to U.S. federal estate tax, under current law, with respect to a decedent who dies after December 31, 2010.

THE U.S. FEDERAL INCOME AND ESTATE TAX DISCUSSION SET FORTH ABOVE IS A SUMMARY. HOLDERS ARE URGED TO CONSULT THEIR OWN TAX ADVISORS TO DETERMINE THE U.S. FEDERAL, STATE AND LOCAL AND NON-U.S. TAX CONSIDERATIONS OF OWNING AND DISPOSING OF OUR COMMON STOCK.

UNDERWRITING

Under the terms and subject to the conditions contained in an underwriting agreement dated March 9, 2010 the selling stockholder has agreed to sell to the underwriters named below, for whom UBS Securities LLC and Credit Suisse Securities (USA) LLC are acting as representatives, the following respective numbers of shares of common stock:

<u>Underwriter</u>	<u>Number of Shares</u>
UBS Securities LLC	9,375,000
Credit Suisse Securities (USA) LLC.	9,375,000
Thomas Weisel Partners LLC	3,750,000
Pacific Crest Securities LLC	1,250,000
Raymond James & Associates, Inc	1,250,000
Total	<u>25,000,000</u>

The underwriting agreement provides that the underwriters are obligated to purchase all the shares of common stock in the offering if any are purchased, other than those shares covered by the over-allotment option described below. The underwriting agreement also provides that if an underwriter defaults the purchase commitments of non-defaulting underwriters may be increased or the offering may be terminated.

Electronic Delivery

An electronic version of this prospectus supplement and the accompanying prospectus may be made available on the web sites maintained by one or more of the underwriters, or selling group members, if any, participating in this offering and one or more of the underwriters participating in this offering may distribute prospectus supplements and the accompanying prospectus electronically. The representatives may agree to allocate a number of shares to underwriters and selling group members for sale to their online brokerage account holders. Internet distributions will be allocated by the underwriters and selling group members that will make internet distributions on the same basis as other allocations.

Nasdaq Global Select Market Listing

Our common stock is listed on the Nasdaq Global Select Market under the symbol "SOLR". We cannot assure you that prices at which shares of our common stock trade in the public market after this offering will not be lower than the public offering price.

Over-Allotment Option

The selling stockholder has granted to the underwriters a 30-day option to purchase on a pro rata basis an aggregate of 3,750,000 additional outstanding shares of common stock from the selling stockholder at the public offering price less the underwriting discounts and commissions. The option may be exercised only to cover any over-allotments of common stock.

Offering Price

The underwriters propose to offer the shares of common stock initially at the public offering price on the cover page of this prospectus supplement and to selling group members at that price less a selling concession of \$0.13095 per share. After the initial public offering the representatives may change the public offering price and concession.

Commissions and Expenses

The following table summarizes the compensation the selling stockholder will pay:

	Per Share		Total	
	Without Over-allotment	With Over-allotment	Without Over-allotment	With Over-allotment
Underwriting Discounts and Commissions paid by the selling stockholder	\$0.21825	\$0.21825	\$5,456,250	\$6,274,688

We estimate that our out-of-pocket expenses for this offering will be approximately \$0.7 million.

Lock-Up Agreements

We have agreed that, subject to certain limited exceptions, we will not offer, sell, contract to sell, pledge or otherwise dispose of, directly or indirectly, or file with the Securities and Exchange Commission a registration statement under the Securities Act relating to, any shares of our common stock or securities convertible into or exchangeable or exercisable for any shares of our common stock, or publicly disclose the intention to make any offer, sale, pledge, disposition or filing, without the prior written consent of UBS Securities LLC and Credit Suisse Securities (USA) LLC for a period of 90 days after the date of this prospectus supplement, except (A) issuances pursuant to the exercise of employee stock options or vesting of restricted stock units outstanding on the date of this prospectus supplement, (B) issuances to employees, director or officers under any employee benefit plan existing on the date of this prospectus supplement or (C) issuances in connection with our acquisition of, or merger or consolidation with, any corporation or business entity; provided that in the case of clause (C), such issuance will not be greater than 10% of our common stock outstanding on the date of issuance and the recipient agrees to be bound by the terms of the “lock-up.” However, in the event that either (1) during the last 17 days of the “lock-up” period, we release earnings results or material news or a material event relating to us occurs or (2) prior to the expiration of the “lock-up” period, we announce that we will release earnings results during the 16-day period beginning on the last day of the “lock-up” period, then in either case the expiration of the “lock-up” will be extended until the expiration of the 18-day period beginning on the date of the release of the earnings results or the occurrence of the material news or event, as applicable, unless UBS Securities LLC and Credit Suisse Securities (USA) LLC waive, in writing, such an extension.

Our officers, directors and the selling stockholder have agreed that they will not offer, sell, contract to sell, pledge or otherwise dispose of, directly or indirectly, any shares of our common stock or securities convertible into or exchangeable or exercisable for any shares of our common stock, enter into a transaction that would have the same effect, or enter into any swap, hedge or other arrangement that transfers, in whole or in part, any of the economic consequences of ownership of our common stock, whether any of these transactions are to be settled by delivery of our common stock or other securities, in cash or otherwise, or publicly disclose the intention to make any offer, sale, pledge or disposition, or to enter into any transaction, swap, hedge or other arrangement, without, in each case, the prior written consent of UBS Securities LLC and Credit Suisse Securities (USA) LLC for a period of 90 days after the date of this prospectus supplement. However, in the event that either (1) during the last 17 days of the “lock-up” period, we release earnings results or material news or a material event relating to us occurs or (2) prior to the expiration of the “lock-up” period, we announce that we will release earnings results during the 16-day period beginning on the last day of the “lock-up” period, then in either case the expiration of the “lock-up” will be extended until the expiration of the 18-day period beginning on the date of the release of the earnings results or the occurrence of the material news or event, as applicable, unless UBS Securities LLC and Credit Suisse Securities (USA) LLC waive, in writing, such an extension. Notwithstanding the foregoing, such officers, directors and stockholder may transfer such securities (i) as a bona fide gift or gifts, (ii) to any trust for the direct or

indirect benefit of such person or the immediate family of such person, provided that the trustee of the trust agrees to be bound in writing by the restrictions set forth in the “lock-up”, (iii) in the case of a corporation, partnership, limited liability company or other business entity, to any subsidiary, stockholder, partner, member or affiliate, as the case may be or (iv) to the underwriters pursuant to the underwriting agreement, provided that in the case of (i), (ii) and (iii), (A) the transferee agrees to be bound in writing by the terms of the “lock-up” prior to such transfer, (B) no filing by any party (donor, donee, transferor or transferee) under the Exchange Act shall be required or shall be voluntarily made in connection with such transfer (other than a filing on a Form 5 made after the expiration of the “lock-up” period) and (C) such transfer shall not involve a disposition for value. Notwithstanding the foregoing, the “lock-up” shall not apply to the distribution (which may be a liquidating distribution) by GT Solar Holdings LLC to its members provided that each member receiving such securities agrees to be bound in writing by the terms set forth in the “lock-up” prior to such distribution and provided further that no filing under the Exchange Act shall be required or shall be voluntarily made in connection with such distribution. In addition, certain of our officers have agreed with the underwriters that an aggregate of 6,299 shares of our common stock may be withheld by us upon the vesting of currently held restricted stock units granted under our 2008 Equity Incentive Plan solely to satisfy the tax withholding obligations of such officers. For purposes of the “lock-up”, “immediate family” shall mean any relationship by blood, marriage or adoption, not more remote than first cousin.

Indemnity

We and the selling stockholder have agreed to indemnify the underwriters against liabilities under the Securities Act, or contribute to payments that the underwriters may be required to make in that respect.

Stabilization

In connection with the offering the underwriters may engage in stabilizing transactions, over-allotment transactions, syndicate covering transactions, penalty bids and passive market making in accordance with Regulation M under the Exchange Act.

- Stabilizing transactions permit bids to purchase the underlying security so long as the stabilizing bids do not exceed a specified maximum.
- Over-allotment involves sales by the underwriters of shares in excess of the number of shares the underwriters are obligated to purchase, which creates a syndicate short position. The short position may be either a covered short position or a naked short position. In a covered short position, the number of shares over-allotted by the underwriters is not greater than the number of shares that they may purchase in the over-allotment option. In a naked short position, the number of shares involved is greater than the number of shares in the over-allotment option. The underwriters may close out any covered short position by either exercising their over-allotment option and/or purchasing shares in the open market.
- Syndicate covering transactions involve purchases of the common stock in the open market after the distribution has been completed in order to cover syndicate short positions. In determining the source of shares to close out the short position, the underwriters will consider, among other things, the price of shares available for purchase in the open market as compared to the price at which they may purchase shares through the over-allotment option. If the underwriters sell more shares than could be covered by the over-allotment option, a naked short position, the position can only be closed out by buying shares in the open market. A naked short position is more likely to be created if the underwriters are concerned that there could be downward pressure on the price of the shares in the open market after pricing that could adversely affect investors who purchase in the offering.

- Penalty bids permit the representatives to reclaim a selling concession from a syndicate member when the common stock originally sold by the syndicate member is purchased in a stabilizing or syndicate covering transaction to cover syndicate short positions.
- In passive market making, market makers in the common stock who are underwriters or prospective underwriters may, subject to limitations, make bids for or purchases of our common stock until the time, if any, at which a stabilizing bid is made.

These stabilizing transactions, syndicate covering transactions, penalty bids and passive market making transactions may have the effect of raising or maintaining the market price of our common stock or preventing or retarding a decline in the market price of the common stock. As a result the price of our common stock may be higher than the price that might otherwise exist in the open market. These transactions may be effected on the Nasdaq Global Select Market or otherwise and, if commenced, may be discontinued at any time.

In the ordinary course, the underwriters and their affiliates have provided, and may in the future provide, investment banking, commercial banking, investment management, or other financial services to us and our affiliates for which they have received compensation and may receive compensation in the future. In July 2008, we entered into a senior credit facility and a cash-collateralized letter of credit facility, in each case with a syndicate of financial institutions (including, in the case of the credit facility, affiliates of UBS Securities LLC and Credit Suisse Securities (USA) LLC). Other affiliates of the underwriters may also become lenders under the senior credit facility or letter of credit facility. In addition, UBS Securities LLC, Credit Suisse Securities (USA) LLC and Thomas Weisel Partners LLC are co-defendants with us in the putative class action lawsuits described in our Annual Report on Form 10-K for the year ended March 28, 2009 and in our Quarterly Report on Form 10-Q for the period ended December 26, 2009.

NOTICE TO INVESTORS

Notice to Prospective Investors in the European Economic Area

In relation to each Member State of the European Economic Area, or EEA, which has implemented the Prospectus Directive (each, a “Relevant Member State”), with effect from, and including, the date on which the Prospectus Directive is implemented in that Relevant Member State (the “Relevant Implementation Date”), an offer to the public of shares of our common stock may not be made in that Relevant Member State, except that, with effect from, and including, the Relevant Implementation Date, an offer to the public in that Relevant Member State of shares of our common stock may be made at any time under the following exemptions under the Prospectus Directive, if they have been implemented in that Relevant Member State:

- a) to legal entities which are authorized or regulated to operate in the financial markets, or, if not so authorized or regulated, whose corporate purpose is solely to invest in our securities;
- b) to any legal entity which has two or more of: (1) an average of at least 250 employees during the last financial year; (2) a total balance sheet of more than €43,000,000 and (3) an annual net turnover of more than €50,000,000, as shown in its last annual or consolidated accounts; or
- c) to fewer than 100 natural or legal persons (other than qualified investors as defined in the Prospectus Directive) subject to obtaining the prior consent of the representative for any such offer; or
- d) in any other circumstances falling within Article 3(2) of the Prospectus Directive provided that no such offer of shares of our common stock shall result in a requirement for the publication by us or any underwriter or agent of a prospectus pursuant to Article 3 of the Prospectus Directive.

As used above, the expression “offered to the public” in relation to any shares of our common stock in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and our common stock to be offered so as to enable an investor to decide to purchase or subscribe for shares of our common stock, as the same may be varied in that Member State by any measure implementing the Prospectus Directive in that Member State and the expression “Prospectus Directive” means Directive 2003/71/EC and includes any relevant implementing measure in each Relevant Member State.

The EEA selling restriction is in addition to any other selling restrictions set out in this prospectus.

Notice to Prospective Investors in the United Kingdom

This prospectus supplement and the accompanying prospectus are only being distributed to and is only directed at: (1) persons who are outside the United Kingdom; (2) investment professionals falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (the “Order”); or (3) high net worth companies, and other persons to whom it may lawfully be communicated, falling within Article 49(2)(a) to (d) of the Order (all such persons falling within (1)-(3) together being referred to as “relevant persons”). The shares are only available to, and any invitation, offer or agreement to subscribe, purchase or otherwise acquire such shares will be engaged in only with, relevant persons. Any person who is not a relevant person should not act or rely on this prospectus supplement, the accompanying prospectus or any of their contents.

Notice to Prospective Investors in Switzerland

The prospectus supplement and the accompanying prospectus do not constitute an issue prospectus pursuant to Article 652a or Article 1156 of the Swiss Code of Obligations (“CO”) and the shares will not be listed on the SIX Swiss Exchange. Therefore, the prospectus supplement and the accompanying

prospectus may not comply with the disclosure standards of the CO and/or the listing rules (including any prospectus schemes) of the SIX Swiss Exchange. Accordingly, the shares may not be offered to the public in or from Switzerland, but only to a selected and limited circle of investors, which do not subscribe to the shares with a view to distribution.

Notice to Prospective Investors in Australia

This offering memorandum is not a formal disclosure document and has not been, nor will be, lodged with the Australian Securities and Investments Commission. It does not purport to contain all information that an investor or their professional advisers would expect to find in a prospectus or other disclosure document (as defined in the Corporations Act 2001 (Australia)) for the purposes of Part 6D.2 of the Corporations Act 2001 (Australia) or in a product disclosure statement for the purposes of Part 7.9 of the Corporations Act 2001 (Australia), in either case, in relation to shares of our common stock.

Shares of our common stock are not being offered in Australia to “retail clients” as defined in sections 761G and 761GA of the Corporations Act 2001 (Australia). This offering is being made in Australia solely to “wholesale clients” for the purposes of section 761G of the Corporations Act 2001 (Australia) and, as such, no prospectus, product disclosure statement or other disclosure document in relation to our common stock has been, or will be, prepared.

This offering memorandum does not constitute an offer in Australia other than to wholesale clients. By submitting an application for shares of our common stock, you represent and warrant to us that you are a wholesale client for the purposes of section 761G of the Corporations Act 2001 (Australia). If any recipient of this offering memorandum is not a wholesale client, no offer of, or invitation to apply for, shares of our common stock shall be deemed to be made to such recipient and no applications for shares of our common stock will be accepted from such recipient. Any offer to a recipient in Australia, and any agreement arising from acceptance of such offer, is personal and may only be accepted by the recipient. In addition, by applying for shares of our common stock you undertake to us that, for a period of 12 months from the date of issue of the shares, you will not transfer any interest in such shares to any person in Australia other than to a wholesale client.

Notice to Prospective Investors in Hong Kong

Shares of our common stock may not be offered or sold in Hong Kong, by means of this prospectus supplement and the accompanying prospectus or any document other than (i) to “professional investors” within the meaning of the Securities and Futures Ordinance (Cap.571, Laws of Hong Kong) and any rules made thereunder, or (ii) in circumstances which do not constitute an offer to the public within the meaning of the Companies Ordinance (Cap.32, Laws of Hong Kong), or (iii) in other circumstances which do not result in the document being a “prospectus” within the meaning of the Companies Ordinance (Cap.32, Laws of Hong Kong). No advertisement, invitation or document relating to our common stock may be issued or may be in the possession of any person for the purpose of issue (in each case whether in Hong Kong or elsewhere) which is directed at, or the contents of which are likely to be accessed or read by, the public in Hong Kong (except if permitted to do so under the securities laws of Hong Kong) other than with respect to shares of our common stock which are or are intended to be disposed of only to persons outside Hong Kong or only to “professional investors” within the meaning of the Securities and Futures Ordinance (Cap. 571, Laws of Hong Kong) and any rules made thereunder.

Notice to Prospective Investors in Japan

Shares of our common stock have not been and will not be registered under the Financial Instruments and Exchange Law of Japan (the Financial Instruments and Exchange Law) and shares of

our common stock will not be offered or sold, directly or indirectly, in Japan, or to, or for the benefit of, any resident of Japan (which term as used herein means any person resident in Japan, including any corporation or other entity organized under the laws of Japan), or to others for re-offering or resale, directly or indirectly, in Japan, or to a resident of Japan, except pursuant to an exemption from the registration requirements of, and otherwise in compliance with, the Financial Instruments and Exchange Law and any other applicable laws, regulations and ministerial guidelines of Japan.

Notice to Prospective Investors in Singapore

This document has not been registered as a prospectus with the Monetary Authority of Singapore and in Singapore, the offer and sale of shares of our common stock is made pursuant to exemptions provided in sections 274 and 275 of the Securities and Futures Act, Chapter 289 of Singapore (“SFA”). Accordingly, this prospectus supplement and the accompanying prospectus and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of shares of our common stock may not be circulated or distributed, nor may shares of our common stock be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor as defined in Section 4A of the SFA pursuant to Section 274 of the SFA, (ii) to a relevant person as defined in section 275(2) of the SFA pursuant to Section 275(1) of the SFA, or any person pursuant to Section 275(1A) of the SFA, and in accordance with the conditions specified in Section 275 of the SFA or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA, in each case subject to compliance with the conditions (if any) set forth in the SFA. Moreover, this document is not a prospectus as defined in the SFA. Accordingly, statutory liability under the SFA in relation to the content of prospectuses would not apply. Prospective investors in Singapore should consider carefully whether an investment in our common stock is suitable for them.

Where shares of our common stock are subscribed or purchased under Section 275 of the SFA by a relevant person which is:

- (a) by a corporation (which is not an accredited investor as defined in Section 4A of the SFA) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or
- (b) for a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary of the trust is an individual who is an accredited investor,

shares of that corporation or the beneficiaries’ rights and interest (howsoever described) in that trust shall not be transferable for six months after that corporation or that trust has acquired the shares under Section 275 of the SFA, except:

- (1) to an institutional investor (for corporations under Section 274 of the SFA) or to a relevant person defined in Section 275(2) of the SFA, or any person pursuant to an offer that is made on terms that such shares of that corporation or such rights and interest in that trust are acquired at a consideration of not less than S\$200,000 (or its equivalent in a foreign currency) for each transaction, whether such amount is to be paid for in cash or by exchange of securities or other assets, and further for corporations, in accordance with the conditions, specified in Section 275 of the SFA;
- (2) where no consideration is given for the transfer; or
- (3) where the transfer is by operation of law.

In addition, investors in Singapore should note that the shares of our common stock acquired by them are subject to resale and transfer restrictions specified under Section 276 of the SFA, and they, therefore, should seek their own legal advice before effecting any resale or transfer of their shares.

LEGAL MATTERS

The validity of the common stock offered pursuant to this prospectus supplement will be passed upon for us by Kirkland & Ellis LLP, Los Angeles, California. Kirkland & Ellis LLP represents entities affiliated with G3W Ventures LLC and Oaktree Capital Management, L.P. in connection with various legal matters. Legal matters in connection with this offering will be passed upon for the underwriters by Davis Polk & Wardwell LLP, Menlo Park, California.

EXPERTS

The consolidated financial statements of GT Solar International, Inc. at March 28, 2009 and March 31, 2008, and for the years ended March 28, 2009, March 31, 2008 and March 31, 2007, incorporated by reference into this prospectus supplement and the accompanying prospectus have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in their report thereon incorporated by reference herein, and are included in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We are currently subject to the information requirements of the Exchange Act and in accordance therewith file periodic reports, proxy statements and other information with the Securities and Exchange Commission. You may read and copy (at prescribed rates) any such reports, proxy statements and other information at the SEC's Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the operation of the public reference room. Our SEC filings, including the registration statement of which this prospectus supplement and the accompanying prospectus form a part, will also be available to you on the SEC's website at <http://www.sec.gov>.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to "incorporate by reference" information into this prospectus supplement and the accompanying prospectus, which means that we can disclose important information about us by referring you to another document filed separately with the SEC. The information incorporated by reference is considered to be a part of this prospectus supplement and the accompanying prospectus. We incorporate by reference the documents and reports listed below (other than portions of these documents that are either (1) described in paragraph (e) of Item 201 of Registration S-K or paragraphs (d)(1)-(3) and (e)(5) of Item 407 of Regulation S-K promulgated by the SEC or (2) furnished under Item 2.02 or Item 7.01 of a Current Report on Form 8-K):

- our Annual Report on Form 10-K for the fiscal year ended March 28, 2009 filed with the SEC on June 9, 2009;
- our proxy statement for our stockholders meeting on August 7, 2009 filed on July 2, 2009 to the extent incorporated by reference into our Annual Report on Form 10-K for the fiscal year ended March 28, 2009;
- our Quarterly Reports on Form 10-Q for the quarter ended June 27, 2009 filed with the SEC on August 5, 2009, for the quarter ended September 26, 2009 filed with the SEC on November 10, 2009 and for the quarter ended December 26, 2009 filed with the SEC on February 5, 2010;
- our Current Reports on Form 8-K filed with the SEC on May 6, 2009, May 27, 2009, June 10, 2009, August 12, 2009, September 8, 2009, November 2, 2009 (to report information under Item 5.02), November 17, 2009, December 11, 2009, December 21, 2009, December 22, 2009, February 16, 2010, March 1, 2010 and March 4, 2010; and

- the description of our common stock, par value \$0.01 per share, included under the caption “Description of Capital Stock” in the Prospectus forming a part of the Company’s Registration Statement on Form S-1, initially filed with the SEC on April 26, 2007 (File No. 333-142383), including exhibits, and as amended, which description has been incorporated by reference in Item 1 of our Registration Statement on Form 8-A, filed pursuant to Section 12 of the Exchange Act, on July 23, 2008 (File No. 001-34133).

We also incorporate by reference the information contained in all other documents we file with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act (other than portions of these documents that are either (1) described in paragraph (e) of Item 201 of Registration S-K or paragraphs (d)(1)-(3) and (e)(5) of Item 407 of Regulation S-K promulgated by the SEC or (2) furnished under Item 2.02 or Item 7.01 of a Current Report on Form 8-K, unless otherwise indicated therein) after the date of this prospectus supplement and prior to the termination of the offering under this prospectus supplement. The information contained in any such document will be considered part of this prospectus supplement and the accompanying prospectus from the date the document is filed with the SEC.

Any statement contained in a document incorporated or deemed to be incorporated by reference in this prospectus supplement or the accompanying prospectus will be deemed to be modified or superseded to the extent that a statement contained herein or in any other subsequently filed document which also is or is deemed to be incorporated by reference in this prospectus supplement or the accompanying prospectus modifies or supersedes that statement. Any statement so modified or superseded will not be deemed, except as so modified or superseded, to constitute a part of this prospectus supplement or the accompanying prospectus.

If you make a request for such information in writing or by telephone, we will provide you, without charge, a copy of any or all of the information incorporated by reference into this prospectus supplement or the accompanying prospectus. Any such request should be directed to:

GT Solar International, Inc.
243 Daniel Webster Highway
Merrimack, New Hampshire 03054
(603) 883-5200
Attention: Secretary

Information about us, including our SEC filings, is also available at our website at www.gtsolar.com. However, the information on our website is not a part of, or incorporated by reference into, this prospectus supplement or the accompanying prospectus and should not be relied upon in determining whether to make an investment in our common stock.

PROSPECTUS

105,538,149 Shares



GT Solar International, Inc.

Common Stock

The selling stockholder named herein may offer and sell from time to time up to 105,538,149 shares of our common stock covered by this prospectus. The selling stockholder will receive all of the proceeds from any sales of its shares. We will not receive any of the proceeds, but we will incur expenses in connection with the offering.

Our registration of the shares of common stock covered by this prospectus does not mean that the selling stockholder will offer or sell any of the shares. The selling stockholder may sell the shares of common stock covered by this prospectus in a number of different ways and at varying prices. We provide more information about how the selling stockholder may sell the shares in the section entitled “Plan of Distribution” beginning on page 11.

Our common stock is traded on The NASDAQ Global Select Market under the symbol “SOLR.” On November 3, 2009 the last reported sale price of our common stock on The NASDAQ Global Select Market was \$5.17 per share.

Investing in our common stock involves risks. See “Risk Factors” on page 1.

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

The date of this prospectus is November 13, 2009.

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission, or the “SEC,” using a “shelf” registration process. Specific information about the terms of an offering will be included in a prospectus or a prospectus supplement relating to each offering of shares. The prospectus supplement may also add, update or change information included in this prospectus. You should read both this prospectus and any applicable prospectus supplement, together with additional information described below under the caption “Where You Can Find More Information.”

You should rely only on the information contained in or incorporated by reference into this prospectus and any applicable prospectus supplements. Neither we, the selling stockholders nor any underwriter has authorized anyone to provide information different from that contained in this prospectus and the documents incorporated by reference herein.

The information contained in this prospectus, in any prospectus supplement or in any document incorporated by reference is accurate only as of its date, regardless of the time of delivery of this prospectus or any sale of common stock.

This prospectus is not an offer to sell or solicitation of an offer to buy these shares of common stock in any circumstances under which or jurisdiction in which the offer or solicitation is unlawful.

Unless the context otherwise indicates, the terms “GT Solar,” “Company,” “we,” “us,” and “our” as used in this prospectus refer to GT Solar International, Inc. and its subsidiaries. The phrase “this prospectus” refers to this prospectus and any applicable prospectus supplement, unless the context otherwise requires.

OUR COMPANY

We are a leading global provider of specialized manufacturing equipment and services for the production of photovoltaic wafers, cells and modules and polysilicon. Our principal products are directional solidification systems, or “DSS” units, and chemical vapor deposition, or “CVD,” reactors and related equipment. DSS units are specialized furnaces used to melt polysilicon and cast multicrystalline ingots from which solar wafers are made. CVD reactors are used to react gases at high temperatures and pressures to produce polysilicon, the key raw material used in solar cells. Our customers include several of the world’s largest solar companies as well as companies in the chemical industry. We operate through two segments: our photovoltaic business and our polysilicon business.

Our business was founded in 1994. Effective January 1, 2006, our business was acquired by GT Solar Holdings, LLC, a newly formed company controlled by investment funds affiliated with GFI Energy Ventures LLC, a private equity investment firm focused on the energy sector, and Oaktree Capital Management, L.P., a global alternative and non-traditional investment manager. GT Solar International, Inc. was originally incorporated in Delaware in September 2006. On September 27, 2006, we completed an internal reorganization through which GT Solar International, Inc. became the parent company of GT Solar Incorporated, our principal operating subsidiary.

Our principal executive offices are located at 243 Daniel Webster Highway, Merrimack, New Hampshire 03054, and our telephone number is (603) 883-5200. Our website address is www.gtsolar.com. The information found on our website is not part of this prospectus.

RISK FACTORS

Our business is subject to significant risks. You should carefully consider the risks and uncertainties described in this prospectus, including the risk factors incorporated by reference from our most recent Annual Report on Form 10-K, as updated by our Quarterly Reports on Form 10-Q or Annual Reports on Form 10-K and other filings we make with the Securities and Exchange Commission (see “Incorporation of Certain Information by Reference”). These risk factors are not the only ones facing us. Additional risks and uncertainties that we do not presently know about or that we currently believe are not material may also adversely affect our business. If any of the risks and uncertainties described in this prospectus, any applicable prospectus supplement or the documents incorporated by reference herein actually occur, our business, financial condition and results of operations could be adversely affected in a material way. This could cause the trading price of our common stock to decline, perhaps significantly, and you may lose part or all of your investment.

FORWARD-LOOKING STATEMENTS

This prospectus, any applicable prospectus supplement and the documents incorporated by reference herein contain forward-looking statements that involve risks and uncertainties. These statements involve known and unknown risks, uncertainties and other factors that may cause our or our industry's actual results, levels of activity, performance or achievements to be materially different from the information expressed or implied by these forward looking statements.

In most cases, you can identify forward looking statements by the following words: "may," "will," "would," "should," "expect," "anticipate," "intend," "plan," "anticipate," "believe," "estimate," "predict," "potential," "continue," "on-going" or the negative of these terms or other comparable terminology, although not all forward-looking statements contain these words. You should consider statements that contain these words carefully because they describe our expectations, plans, strategies and goals and beliefs concerning future business conditions, our results of operations, financial position, and our business outlook or state other "forward-looking" information based on currently available information.

There are a number of important factors that could cause actual results to differ materially from the results anticipated by these forward-looking statements. These important factors include those that we discuss under the heading "Risk Factors" in our most recent Annual Report on Form 10-K and any subsequently filed Quarterly Reports on Form 10-Q, and the following factors:

- the potential adverse impact of general economic conditions on demand for our products;
- current future credit and financial market conditions;
- the failure of amounts in our order backlog to result in actual revenue or to translate into profits;
- our dependence on a small number of customers;
- our dependence on the sale of a limited number of products;
- our dependence on a limited number of third party suppliers;
- product liability claims and/or claims in relation to third party equipment;
- loss of any of our management team or our inability to attract and retain key employees or integrate new employees into our management team;
- our inability to attract, train and retain technical personnel;
- our inability to protect our intellectual property and the possibility of litigation to protect our intellectual property rights;
- risks associated with the international nature of our business, including of unfavorable political, regulatory, labor and tax conditions in foreign countries;
- compliance with legal systems in other countries in which we offer and sell our products;
- commercial, jurisdictional and legal risks associated with our business in China;
- claims relating to the infringement, misappropriation or other violation of proprietary manufacturing expertise, technological innovation and other intellectual property rights;
- concentration of credit risk related to our cash equivalents;
- our inability to comply with covenants in our credit facilities;
- our exposure to warranty claims;

- our exposure to exchange rate fluctuations;
- the effect of increases in interest rates or the reduced availability of financing on demand for our products;
- the securities class action lawsuits relating to our initial public offering;
- our inability to implement the requirements of Section 404 of the Sarbanes-Oxley Act in a timely manner;
- our inability to recognize revenue on sales of new products;
- our lack of ownership of the technology underlying our CVD reactor;
- cyclicalities in the market for polysilicon and variation in demand for products sold in our polysilicon business;
- direct and indirect competition for our polysilicon production equipment;
- our reliance on a limited number of suppliers and manufacturers for our polysilicon business;
- competition from other manufacturers of photovoltaic products;
- the loss of government subsidies or economic incentives for on-grid solar electricity applications;
- existing regulations and policies or changes to regulations and policies relating to the electric utility industry;
- inability of the photovoltaic industry to compete successfully with conventional power generation or other sources of renewable energy; and
- technological changes in the photovoltaic industry that render existing products and technologies uncompetitive or obsolete.

The foregoing factors should not be construed as exhaustive and should be read in conjunction with the other statements that are included under the heading “Risk Factors” in this prospectus and the documents incorporated by reference herein.

You should read these risk factors and the other cautionary statements made in this prospectus as being applicable to all related forward looking statements wherever they appear in this prospectus. We cannot assure you that the forward-looking statements in this prospectus will prove to be accurate. Furthermore, if our forward-looking statements prove to be inaccurate, the inaccuracy may be material. In light of the significant uncertainties in these forward-looking statements, you should not regard these statements as a representation or warranty by us or any other person that we will achieve our objectives and plans in any specified time frame, if at all.

The forward-looking statements made in this prospectus relate only to events as of the date on which the statements are made. We undertake no obligation to update any forward-looking statement to reflect events or circumstances after the date on which the statement is made or to reflect the occurrence of unanticipated events, except to the extent required by applicable securities law.

SELLING STOCKHOLDER

Beneficial Ownership

The following table sets forth information with respect to the beneficial ownership of our common stock held as of October 23, 2009 by the selling stockholder, the number of shares being offered hereby and information with respect to shares to be beneficially owned by the selling stockholder assuming all the shares registered hereunder are sold. The percentages in the following table reflect the shares beneficially owned by the selling stockholder as a percentage of the total number of shares of our common stock outstanding as of October 23, 2009.

Name	Shares Beneficially Owned Prior to the Offering		Shares Offered Hereby	Shares Beneficially Owned After the Offering(1)	
	Number	Percentage	Number	Number	Percentage
GT Solar Holdings, LLC(2)	105,538,149	73.5%	105,538,149	—	—%

- (1) Assumes that the selling stockholder disposes of all the shares of common stock covered by this prospectus and does not acquire beneficial ownership of any additional shares. The registration of these shares does not necessarily mean that the selling stockholder will sell all or any portion of the shares covered by this prospectus.
- (2) All of the shares reported are directly owned by GT Solar Holdings, LLC. OCM/GFI Power Opportunities Fund II, L.P., or the “Main Fund,” and OCM/GFI Power Opportunities II (Cayman), L.P. (“Cayman Fund” and together with the Main Fund, “OCM/GFI Funds”) are together the managing member of GT Solar Holdings, LLC. Each of GFI Energy Ventures LLC, or “GFI” and Oaktree Capital Management, L.P., or “OCM,” is an investment manager of each of the OCM/GFI Funds. As a result, each of the OCM/GFI Funds, GFI and OCM may be deemed to have beneficial ownership of the shares owned by GT Solar Holdings, LLC. Oaktree Capital Group Holdings GP, LLC or “Oaktree Group,” ultimately controls OCM. Oaktree Group is a limited liability company managed by Howard S. Marks, Bruce A. Karsh, Sheldon M. Stone, D. Richard Masson, Larry W. Keele, Stephen A. Kaplan, John B. Frank, David Kirchheimer and Kevin L. Clayton. Voting and investment power with respect to securities owned by the OCM/GFI Funds is exercised by a four-person committee, composed of two representatives of GFI (any of Messrs. Lawrence D. Gilson, Richard K. Landers, Ian A. Schapiro and Andrew G. Osler) and two representatives of OCM (Messrs. Stephen A. Kaplan and Michael P. Harmon). The OCM/GFI Funds, GFI, OCM, Oaktree Group and all such individuals expressly disclaim beneficial ownership of the shares held by GT Solar Holdings, LLC, except to the extent of their respective pecuniary interests therein. The address for each of GT Solar Holdings, LLC, GFI, the OCM/GFI Funds and Messrs. Landers, Gilson, Schapiro and Osler is c/o GFI Energy Ventures LLC, 11611 San Vicente Blvd., Suite 710, Los Angeles, California 90049. The address for OCM, Oaktree Group and Messrs. Marks, Karsh, Stone, Masson, Keele, Kaplan, Frank, Kirchheimer, Clayton and Harmon is c/o Oaktree Capital Management, L.P., 333 South Grand Avenue, 28th floor, Los Angeles, California 90071.

Material Relationships

Acquisition by GT Solar Holdings, LLC. Effective January 1, 2006, GT Solar Incorporated (formerly known as GT Equipment Technologies, Inc.), was acquired by GT Solar Holdings, LLC (the “Acquisition”). The Acquisition was effected through the merger of Glow Merger Corporation, a newly formed wholly owned subsidiary of GT Solar Holdings, LLC, with and into GT Solar Incorporated, with GT Solar Incorporated being the surviving corporation. In connection with the merger, each of the existing stockholders of GT Solar Incorporated (other than the rollover stockholders named below)

received \$106.94 per share on account of their common stock. Certain of the existing stockholders of GT Solar Incorporated reinvested a portion of the proceeds they would have otherwise received in the merger by receiving Class A shares of GT Solar Holdings, LLC.

The selling stockholder GT Solar Holdings, LLC was formed on November 23, 2005. OCM/GFI Power Opportunities Fund II, L.P., or the “Main Fund,” and OCM/GFI Power Opportunities Fund II (Cayman), L.P. or, the “Cayman Fund”, are together the managing member of the selling stockholder and own a significant portion of the outstanding shares of the selling stockholder. The Main Fund and the Cayman Fund are private investment funds and act as fiduciaries to their respective investors. These funds are in the business of investing in, holding and then selling positions in energy-related portfolio companies. In the ordinary course of business, these funds formed the selling stockholder for the purpose of effecting the Acquisition and acquiring the shares of GT Equipment Technologies, Inc. (now known as GT Solar Incorporated), which shares have been converted into the shares registered for sale on the registration statement of which this prospectus is a part.

In connection with the Acquisition, GT Solar Incorporated, the selling stockholder, the Main Fund, the Cayman Fund and the other shareholders of the selling stockholder entered into a registration rights agreement, dated December 30, 2005, which was later amended to give effect to the reorganization merger described below. As described more fully below, pursuant to the amended and restated registration rights agreement, the holders of a majority of the shares issued to the Main Fund in respect of its shareholdings in the selling stockholder, have the right, on either a certain number or an unlimited number of occasions depending on the form of registration statement to be used, to demand that we register shares of our common stock under the Securities Act, subject to certain limitations. Except for our obligation to register the selling stockholder’s shares on a registration statement, at the time of the Acquisition, the Main Fund, the Cayman Fund, the selling stockholder and their respective affiliates had no agreements or understandings, directly or indirectly, with any person to distribute the selling stockholder’s shares.

In connection with the Acquisition, GT Solar Incorporated issued a senior secured promissory note in favor of certain shareholders of GT Solar Holdings, LLC in the aggregate amount of \$15.0 million. The proceeds from the issuance of the promissory note were used to fund part of the consideration in the Acquisition. The terms of this note provided for monthly payments of interest at the LIBOR rate plus 3.25%, and for full payment of the principal amount upon the maturity date of April 30, 2006. The lenders under this note were the Main Fund (88.8%) and the Cayman Fund (11.1%).

Reorganization Merger. GT Solar International, Inc. was originally incorporated on September 27, 2006 as a wholly owned, direct subsidiary of GT Solar Holdings, LLC. On September 28, 2006, GT Solar International, Inc. entered into the Agreement and Plan of Merger with GT Solar Incorporated and GT Solar Merger Corp., a newly formed wholly owned subsidiary of GT Solar International, Inc., pursuant to which GT Solar Merger Corp. was merged with and into GT Solar Incorporated, with GT Solar Incorporated continuing as the surviving corporation in the merger (the “Reorganization Merger”). In the Reorganization Merger, each outstanding share of common stock of GT Solar Incorporated was converted into one share of common stock of GT Solar International, Inc., and each outstanding option to acquire a share of common stock of GT Solar Incorporated was converted into an option to acquire one share of common stock of GT Solar International, Inc. As a result of the Reorganization Merger, GT Solar International, Inc. issued 8,370,000 shares of common stock. Immediately following, and as a result of, the Reorganization Merger, GT Solar Incorporated became a wholly owned, direct subsidiary of the GT Solar International, Inc. GT Solar International, Inc. is a direct subsidiary of GT Solar Holdings, LLC. The Reorganization Merger was effected to facilitate a proposed admission for trading of the common stock of GT International on the AIM, a market operated by the London Stock Exchange. The proposed admission was abandoned in November 2006.

Letter of Credit Facility. On December 29, 2005, GT Solar Holdings, LLC's majority shareholder began to issue letters of credit on behalf of GT Solar in favor of third parties. The first of these letters of credit was issued to backstop letters of credit issued by us under a credit facility we had prior to the Acquisition. The remaining letters of credit were for the specific purpose of satisfying our contractual obligations to our customers. The last of these letters of credit expired on January 9, 2007.

Senior Secured Exchangeable Promissory Note. On April 1, 2006, GT Solar Incorporated (formerly known as GT Equipment Technologies, Inc.) issued a promissory note, in the initial nominal amount of \$15.0 million, in favor of the Main Fund and each of the other Class A shareholders of GT Solar Holdings, LLC. The note was guaranteed by the issuer's parent company, GT Solar Holdings, LLC, and the issuer's wholly-owned subsidiary, GT Equipment Holdings, Inc., and was secured by the assets and undertakings of GT Solar Incorporated, GT Solar Holdings, LLC and GT Equipment Holdings, Inc. The note accrued interest at 14% per annum, with a minimum of 8% payable in cash. The note had a scheduled maturity of September 15, 2008. The net proceeds from the issuance of this note were used to repay the senior secured promissory note of \$15.0 million that was issued in connection with the Acquisition, and was otherwise schedule to mature on April 30, 2006. The original note was issued by Glow Merger Corporation, which was merged with and into GT Solar Incorporated, with GT Solar Incorporated being the surviving corporation. In connection with the repayment of the original note, the Main Fund and the Cayman Fund received approximately \$3.6 million and \$0.5 million, respectively. Upon the election of the holders of two-thirds of the then outstanding nominal amount of the note, the note was exchangeable for Class A shares in GT Solar Holdings, LLC pursuant to an associated Exchange Agreement by and among GT Solar Holdings, LLC, GT Solar Incorporated and the lenders under the note. We repaid this note in full on April 23, 2007, using cash from operations and terminated the Exchange Agreement.

Limited Liability Company Agreement of GT Solar Holdings, LLC. On December 30, 2005, the members of GT Solar Holdings, LLC, including the Main Fund and the Cayman Fund, Thomas M. Zarrella, our chief executive officer and director, certain of our former directors and executive officers and certain other investors, entered into a limited liability company agreement to establish the affairs of GT Solar Holdings, LLC. The limited liability company agreement provides that, subject to certain exceptions, all aspects of the management and direction of GT Solar Holdings, LLC are the responsibility of the Main Fund and the Cayman Fund, which are, together, the managing member of GT Solar Holdings, LLC.

The limited liability company agreement authorizes GT Solar Holdings, LLC to issue Class A Shares, Class B Shares, Class C Shares and Class D Shares. The managing member has sole discretion to authorize the issuance by GT Solar Holdings, LLC of any equity securities. The Class A Shares and the Class C Shares are not subject to vesting, and the Class B Shares and the Class D Shares may only be issued to our employees and are subject to vesting. The Class B and Class D Shares vest only so long as the holder thereof remains employed by us.

Distributions on the Class A Shares, Class B Shares, Class C Shares and Class D Shares have the following order of preference:

1. to the holders of outstanding Class A Shares until the aggregate unreturned capital (as defined in the limited liability company agreement) with respect to the Class A Shares has been reduced to zero;
2. to the holders of outstanding Class A Shares until the aggregate unpaid Class A return (as defined in the limited liability company agreement) with respect to the Class A Shares has been reduced to zero;
3. to the holders of outstanding Class B Shares in such amount as is necessary to cause the aggregate amount distributed in respect of each such outstanding Class B Share to be equal to

the aggregate amount theretofore distributed with respect to each outstanding Class A Share pursuant to item 2 above;

4. to the holders of the outstanding Class A Shares and the holders of outstanding Class B Shares, ratably among such holders based upon the aggregate number of Class A Shares and Class B Shares held by each such holder immediately prior to such distribution, until cash distributions made on the Class A Shares result in an internal rate of return, or IRR (as defined in the limited liability company agreement), that is equal to 20%;
5. until cash distributions made on the Class A Shares result in an IRR equal to 30%,
 - (i) to the holders of outstanding Class C and Class D Shares, ratably among such holders based upon the aggregate number of Class C and Class D Shares held by each such holder immediately prior to such distribution, in such amount as is necessary to cause the distributions with respect to each such Class C Share and Class D Shares to be equal to the product of (i) the aggregate, cumulative amount theretofore distributed with respect to each Class A Share, multiplied by (ii) the product obtained by multiplying (x) the excess of the IRR over 20%, by (y) ten; and
 - (ii) to the holders of outstanding Class A Shares and Class B Shares ratably among such holders based upon the aggregate number of Class A Shares and Class B Shares held by each such holder immediately prior to such distribution; and
6. all distributions made at or after such time as cash distributions made on the Class A Shares have resulted in an IRR that is equal to or greater than 30% shall be made to the holders of Class A Shares, Class B Shares, Class C Shares and Class D Shares ratably based on holdings of such shares.

Amounts distributed to holders of Class B Shares and Class D Shares in respect of the unvested portion of such shares shall be retained by GT Solar Holdings, LLC (other than certain tax distributions that GT Solar Holdings, LLC would be obligated to make) and distributed to the holder to the extent the unvested shares become vested in accordance with the terms of the limited liability company agreement.

Subject to certain exceptions, the holders of Class A Shares have the right to purchase their proportional share of equity securities that GT Solar Holdings, LLC authorizes for issuance or sale to the managing member. The limited liability company agreement generally prohibits the transfer of GT Solar Holdings, LLC's shares by the holders of those shares other than in certain limited circumstances, such as with consent of the managing member or upon a sale of GT Solar Holdings, LLC approved by the managing member or by holders of a majority of GT Solar Holdings, LLC shares issued to the Main Fund and the Cayman Fund. GT Solar Holdings, LLC, followed by the managing member, shall have a right of first refusal to purchase GT Solar Holdings, LLC's shares from a transferring shareholder. Subject to specified conditions, the members of GT Solar Holdings, LLC have certain rights to participate in transfers of shares by the managing member. Subject to specified conditions, the limited liability company agreement requires the members of GT Solar Holdings, LLC to vote for, consent to and raise no objections against a sale of GT Solar Holdings, LLC approved by the managing member or by holders of a majority of the GT Solar Holdings, LLC's shares issued to the Main Fund and the Cayman Fund.

The limited liability company agreement provides that GT Solar Holdings, LLC will pay or cause its subsidiaries (including GT Solar International, Inc.) to pay the reasonable out of pocket expenses of the Main Fund and the Cayman Fund in the performance of its duties as managing member of GT Solar Holdings, LLC, including, but not limited to: any debt financing documents and each other agreement executed in connection with the limited liability company agreement, and the evaluation and consummation of the transactions contemplated by the limited liability company agreement and those

other agreements; any amendments or waivers under or in respect of the limited liability company agreement and those other agreements; the enforcement of rights granted under the limited liability company agreement and those other agreements, or the Main Fund's and the Cayman Fund's direct or indirect investment in GT Solar Holdings, LLC or in GT Solar Incorporated and their respective subsidiaries; governmental filings with respect to such investments; fees and expenses of any lenders of GT Solar Holdings, LLC and its subsidiaries; and any transaction, claim, event or other matter relating to GT Solar Incorporated or its subsidiaries or the transactions contemplated thereby as to which the Main Fund and the Cayman Fund seeks advice of counsel.

Registration Rights Agreement. In connection with the Acquisition on December 30, 2005, GT Solar Incorporated, GT Solar Holdings, LLC, the Main Fund and the other shareholders of GT Solar Holdings, LLC entered into a registration rights agreement, dated December 30, 2005. On July 1, 2008, GT Solar, GT Solar Incorporated, GT Solar Holdings, LLC and the Main Fund entered into an amended and restated registration rights agreement, to reflect the fact that GT Solar Holdings, LLC exchanged its common stock of GT Solar Incorporated for shares of common stock of GT Solar, and GT Solar Incorporated became a subsidiary of GT Solar. Pursuant to the amended and restated registration rights agreement, the holders of a majority of the shares issued to the Main Fund in respect of its shareholdings in GT Solar Holdings, LLC, have the right, on either a certain number or an unlimited number of occasions depending on the form of registration to be used, to demand that we register shares of our common stock under the Securities Act, subject to certain limitations. In addition, those holders that hold 5% or more of the shares of our common stock are entitled to piggyback registration rights with respect to the registration of the shares of our common stock. In the event that we propose to register any shares under the Securities Act either for our account or for the account of any of our stockholders, the holders of shares of our common stock having piggyback registration rights are entitled to receive notice of such registration and to include additional shares of our common stock in any such registration, subject to certain limitations.

These registration rights are subject to conditions and limitations, among them the right of the underwriters of an offering to limit the number of shares of our common stock held by such stockholders to be included in such registration. We are generally required to bear all expenses of such registration (other than underwriting discounts and commissions). In connection with each of these registrations, we have agreed to indemnify the holders of registrable securities against certain liabilities under the Securities Act.

We registered the shares of certain selling stockholders in our initial public offering in July 2008 and paid approximately \$4.2 million of expenses, of which approximately \$2.7 million was paid in fiscal 2009, in connection with that offering pursuant to the terms of the registration rights agreement.

We will pay the expenses (other than any underwriting discounts and commission) of this offering pursuant to the terms of the registration rights agreement.

Employee Stockholders Agreement. In connection with the Acquisition, GT Solar Incorporated entered into an employee stockholders agreement, dated December 30, 2005, with GT Solar Holdings, LLC and each individual who executed a counterpart to the employee stockholders agreement as well as any other person who acquired shares of our common stock pursuant to the 2006 Stock Option Plan. On July 1, 2008, GT Solar entered into an amended and restated employee stockholders agreement with GT Solar Holdings, LLC, GT Solar Incorporated and each individual who executed a counterpart to the employee stockholders agreement as well as any other person who acquires shares of our common stock pursuant to the 2006 Stock Option Plan, to assume GT Solar Incorporated's obligations under the original employee stockholders agreement. The amended and restated employee stockholders agreement restricted the transfer of shares of our common stock by the employee stockholders. We had a right of first refusal on proposed sales of our common stock held by employee stockholders and an option to purchase shares held by employee stockholders upon

termination their employment. The employee stockholders had the right to participate in a sale of more than 50% of the shares of our common stock held by GT Solar Holdings, LLC, and GT Solar Holdings, LLC has the right to require the employee stockholders to participate in any such sale, on the same terms and conditions, and for the same consideration as, GT Solar Holdings, LLC. The amended and restated employee stockholders agreement terminated automatically upon the completion of our initial public offering.

Payments to Holders of GT Solar Holdings, LLC Shares. GT Solar Holdings, LLC used the net proceeds from our initial public offering to make payments in respect of its Class A, Class B, Class C and Class D shares in an aggregate amount of approximately \$470.0 million. These payments were made to holders of Class A, Class B, Class C and Class D shares in accordance with the limited liability company agreement of GT Solar Holdings, LLC. These holders elected to receive the payments in cash, shares of our common stock or a combination of cash and shares of our common stock. The following table sets forth the aggregate value of the cash payment, based upon the initial public offering price of \$16.50 per share, received by the Power Fund, the Main Fund and an executive officer, all of whom are shareholders of GT Solar Holdings, LLC. The table represents the distribution of the proceeds of our initial public offering by GT Solar Holdings, LLC to its shareholders prior to the distribution by GT Solar Holdings, LLC to its shareholders of its portion of the dividend in the aggregate amount of \$90.0 million that we declared on June 30, 2008 and paid to our existing shareholders after the completion of our initial public offering.

<u>Name</u>	<u>Aggregate Value of the Cash Payment (in millions)</u>
OCM/GFI Power Opportunities Fund II, L.P.	\$281.7
OCM/GFI Power Opportunities Fund II (Cayman), L.P.	35.2
Thomas M. Zarrella(a) President, Chief Executive Officer and Director	8.5

(a) In addition to his cash payment Mr. Zarrella received 551,851 shares of our common stock.

On July 29, 2008, GT Solar Holdings, LLC and Mr. Zarrella entered into a letter agreement pursuant to which the portion of the distribution of our initial public offering proceeds received by Mr. Zarrella in respect of the Class B shares of GT Solar Holdings, LLC held by Mr. Zarrella will be allocated entirely to Class B shares held by Mr. Zarrella that have vested as of the date of such distribution without reducing the aggregate amount that he was to receive in respect of all of his Class B shares. The letter agreement provides that each future distribution by GT Solar Holdings, LLC to Mr. Zarrella in respect of his Class B shares will be allocated to only the Class B shares that have vested as of the date of such distribution, without reducing the aggregate amount that he would have received in respect of all of his Class B shares in connection with such distribution. The letter agreement provides further that to the extent that any of Mr. Zarrella's unvested Class B shares fails to vest, (1) future distributions to Mr. Zarrella in respect of any of his shares of GT Solar Holdings, LLC, be they Class B or otherwise, will be reduced by the amount of prior distributions that would have been allocated to such unvested shares but for the letter agreement and (2) subject to certain limitations, in the event any such future distributions are made in both cash and securities, the reduction noted in (1) above will be applied first to the value of the securities to be distributed to Mr. Zarrella.

Non-Employee Director Fees. In June 2009, the Compensation Committee approved a change to the compensation program for directors such that non-employee directors who are affiliated with GFI Energy Ventures LLC will begin to receive annual fees for Board and committee service at the same time and in the same amount paid to our other non-employee directors. In addition, our non-employee directors who are affiliated with GFI Energy Ventures LLC received an equity award in the form of

restricted stock units on the date of the 2009 Annual Meeting. We made these payments, and equity awards were granted to GFI Energy Ventures LLC in lieu of making these payments and equity awards to Messrs. Forth and Landers. Messrs. Forth and Landers are partners of GFI Energy Ventures LLC. In June 2009, the Audit Committee ratified these payments and equity awards in accordance with our related person policy.

Directors and Officers. Richard K. Landers and J. Bradford Forth, partners of GFI Energy Ventures LLC, are members of our board of directors. For a description of the ownership of GFI Energy Ventures LLC, see footnote (2) to the table under the heading “—Selling Stockholder.”

USE OF PROCEEDS

All of the shares of common stock offered by the selling stockholder pursuant to this prospectus will be sold by the selling stockholder for its account. We will not receive any of the proceeds from these sales.

PLAN OF DISTRIBUTION

We are registering 105,538,149 shares of our common stock for possible sale by the selling stockholder. Unless the context otherwise requires, as used in this prospectus, “selling stockholder” includes the selling stockholder named in the table above and donees, pledgees, transferees or other successors-in-interest selling shares received from the selling stockholder as a gift, pledge, partnership distribution or other transfer after the date of this prospectus.

The selling stockholder may offer and sell all or a portion of the shares covered by this prospectus from time to time, in one or more or any combination of the following transactions:

- on the NASDAQ Global Select Market, in the over-the-counter market or on any other national securities exchange on which our shares are listed or traded;
- in privately negotiated transactions;
- in underwritten transactions;
- in a block trade in which a broker-dealer will attempt to sell the offered shares as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- through purchases by a broker-dealer as principal and resale by the broker-dealer for its account pursuant to this prospectus;
- in ordinary brokerage transactions and transactions in which the broker solicits purchasers; and
- through the writing of options (including put or call options), whether the options are listed on an options exchange or otherwise.

The selling stockholder may sell the shares at prices then prevailing or related to the then current market price or at negotiated prices. The offering price of the shares from time to time will be determined by the selling stockholder and, at the time of the determination, may be higher or lower than the market price of our common stock on The NASDAQ Global Select Market or any other exchange or market.

The shares may be sold directly or through broker-dealers acting as principal or agent, or pursuant to a distribution by one or more underwriters on a firm commitment or best-efforts basis. The selling stockholder may also enter into hedging transactions with broker-dealers. In connection with such transactions, broker-dealers or other financial institutions may engage in short sales of our common stock in the course of hedging the positions they assume with the selling stockholder. The selling stockholder may also enter into options or other transactions with broker-dealers or other financial institutions which require the delivery to such broker-dealer or other financial institution of shares offered by this prospectus, which shares such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction). In connection with an underwritten offering, underwriters or agents may receive compensation in the form of discounts, concessions or commissions from the selling stockholder or from purchasers of the offered shares for whom they may act as agents. In addition, underwriters may sell the shares to or through dealers, and those dealers may receive compensation in the form of discounts, concessions or commissions from the underwriters and/or commissions from the purchasers for whom they may act as agents. The selling stockholder and any underwriters, dealers or agents participating in a distribution of the shares may be deemed to be “underwriters” within the meaning of the Securities Act, and any profit on the sale of the shares by the selling stockholder and any commissions received by broker-dealers may be deemed to be underwriting commissions under the Securities Act.

The selling stockholder may agree to indemnify an underwriter, broker-dealer or agent against certain liabilities related to the selling of the common stock, including liabilities arising under the Securities Act. Under the registration rights agreement, we have agreed to indemnify the selling

stockholder against certain liabilities related to the sale of the common stock, including certain liabilities arising under the Securities Act. Under the registration rights agreement, we have also agreed to pay the costs, expenses and fees of registering the shares of common stock; however, the selling stockholder will pay any underwriting discounts or commissions relating to the sale of the shares of common stock in any underwritten offering.

The selling stockholder has advised us that it has not entered into any agreements, understandings or arrangements with any underwriters or broker-dealers regarding the sale of its shares. Upon our notification by the selling stockholder that any material arrangement has been entered into with an underwriter or broker-dealer for the sale of shares through a block trade, special offering, exchange distribution, secondary distribution or a purchase by an underwriter or broker-dealer, we will file a supplement to this prospectus, if required, pursuant to Rule 424(b) under the Securities Act, disclosing certain material information, including:

- the name of the selling stockholder;
- the number of shares being offered;
- the terms of the offering;
- the names of the participating underwriters, broker-dealers or agents;
- any discounts, commissions or other compensation paid to underwriters or broker-dealers and any discounts, commissions or concessions allowed or reallocated or paid by any underwriters to dealers;
- the public offering price; and
- other material terms of the offering.

In addition, upon being notified by the selling stockholder that a donee, pledgee, transferee, other successor-in-interest intends to sell more than 500 shares, we will, to the extent required, promptly file a supplement to this prospectus to name specifically such person as a selling stockholder.

The selling stockholder is subject to the applicable provisions of the Securities Exchange Act of 1934, as amended, or Exchange Act, and the rules and regulations under the Exchange Act, including Regulation M. This regulation may limit the timing of purchases and sales of any of the shares of common stock offered in this prospectus by the selling stockholder. The anti-manipulation rules under the Exchange Act may apply to sales of shares in the market and to the activities of the selling stockholder and its affiliates. Furthermore, Regulation M may restrict the ability of any person engaged in the distribution of the shares to engage in market-making activities for the particular securities being distributed for a period of up to five business days before the distribution. The restrictions may affect the marketability of the shares and the ability of any person or entity to engage in market-making activities for the shares.

To the extent required, this prospectus may be amended and/or supplemented from time to time to describe a specific plan of distribution. Instead of selling the shares of common stock under this prospectus, the selling stockholder may sell the shares of common stock in compliance with the provisions of Rule 144 under the Securities Act, if available, or pursuant to other available exemptions from the registration requirements of the Securities Act.

LEGAL MATTERS

The validity of the common stock offered hereby will be passed upon for us by Kirkland & Ellis LLP (a partnership that includes professional corporations), Los Angeles, California. Kirkland & Ellis LLP represents entities affiliated with GFI Energy Ventures LLC and Oaktree Capital Management, L.P. in connection with various legal matters.

EXPERTS

The consolidated financial statements appearing in our Annual Report on Form 10-K for the fiscal year ended March 28, 2009 have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth on their report thereon, included therein, and incorporated herein by reference. Such consolidated financial statements are incorporated herein by reference in reliance upon such report given on the authority of Ernst & Young LLP as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We are currently subject to the information requirements of the Exchange Act and in accordance therewith file periodic reports, proxy statements and other information with the Securities and Exchange Commission. You may read and copy (at prescribed rates) any such reports, proxy statements and other information at the SEC's Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the operation of the public reference room. Our SEC filings will also be available to you on the SEC's website at <http://www.sec.gov>.

We have filed with the SEC a registration statement on Form S-3 with respect to the shares of common stock offered hereby. This prospectus does not contain all the information set forth in the registration statement, parts of which are omitted in accordance with the rules and regulations of the SEC. For further information with respect to us and the common stock offered hereby, reference is made to the registration statement.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to "incorporate by reference" information into this prospectus, which means that we can disclose important information about us by referring you to another document filed separately with the SEC. The information incorporated by reference is considered to be a part of this prospectus. This prospectus incorporates by reference the documents and reports listed below (other than portions of these documents that are either (1) described in paragraph (e) of Item 201 of Registration S-K or paragraphs (d)(1)-(3) and (e)(5) of Item 407 of Regulation S-K promulgated by the SEC or (2) furnished under Item 2.02 or Item 7.01 of a Current Report on Form 8-K):

- our Annual Report on Form 10-K for the fiscal year ended March 28, 2009 filed with the SEC on June 9, 2009;
- our Quarterly Report on Form 10-Q for the quarter ended June 27, 2009 filed with the SEC on August 5, 2009;
- our Current Reports on Form 8-K filed with the SEC on May 6, 2009, May 27, 2009, June 10, 2009, August 12, 2009, September 8, 2009 and November 2, 2009 (to report information under Item 5.02); and
- The description of our common stock, par value \$0.01 per share, included under the caption "Description of Capital Stock" in the Prospectus forming a part of the Company's Registration Statement on Form S-1, initially filed with the SEC on April 26, 2007 (File No. 333-142383), including exhibits, and as amended, which description has been incorporated by reference in Item 1 of our Registration Statement on Form 8-A, filed pursuant to Section 12 of the Exchange Act, on July 23, 2008 (File No. 001-34133).

We also incorporate by reference the information contained in all other documents we file with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act (other than portions of these documents that are either (1) described in paragraph (e) of Item 201 of Registration S-K or paragraphs (d)(1)-(3) and (e)(5) of Item 407 of Regulation S-K promulgated by the SEC or

(2) furnished under Item 2.02 or Item 7.01 of a Current Report on Form 8-K, unless otherwise indicated therein) after the date of the initial registration statement and prior to the effectiveness of the registration statement and after the date of this prospectus and prior to the termination of this offering. The information contained in any such document will be considered part of this prospectus from the date the document is filed with the SEC.

Any statement contained in a document incorporated or deemed to be incorporated by reference in this prospectus will be deemed to be modified or superseded to the extent that a statement contained herein or in any other subsequently filed document which also is or is deemed to be incorporated by reference in this prospectus modifies or supersedes that statement. Any statement so modified or superseded will not be deemed, except as so modified or superseded, to constitute a part of this prospectus.

If you make a request for such information in writing or by telephone, we will provide you, without charge, a copy of any or all of the information incorporated by reference into this prospectus. Any such request should be directed to:

GT Solar International, Inc.
243 Daniel Webster Highway
Merrimack, New Hampshire 03054
(603) 883-5200
Attention: Secretary

