

ADVANCED ENERGY INDUSTRIES INC

Form 424B3

May 28, 2010

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File Number 333-167027

PROSPECTUS

ADVANCED ENERGY INDUSTRIES, INC.

997,966 Shares of Common Stock

We issued shares of our common stock to stockholders of PV Powered, Inc., an Oregon corporation, or PVP, pursuant to an Agreement and Plan of Merger, dated March 24, 2010, as amended on April 21, 2010, by and among Advanced Energy, PVP and Neptune Acquisition Sub, Inc., an Oregon corporation and wholly-owned subsidiary of Advanced Energy. This prospectus may be used by selling stockholders we identify in this prospectus, and their respective transferees, pledges, donees or successors-in-interest, to resell up to 997,966 shares of our common stock issued to such stockholders under the terms of the Agreement and Plan of Merger. We will not receive any proceeds from the sale of these shares by the selling stockholders.

The selling stockholders may offer and sell up to 997,966 shares of our common stock from time to time to or through underwriters, brokers, dealers or other agents, who may act as agent or as principal, or directly to purchasers, or by a combination of such methods of sale, in one or more market transactions or private transactions at prevailing market or at negotiated prices. Our common stock is listed on the Nasdaq Global Select Market under the symbol AEIS. The closing price of our common stock on the Nasdaq Global Select Market was \$11.94 on May 24, 2010.

INVESTING IN OUR SECURITIES INVOLVES A HIGH DEGREE OF RISK. SEE RISK FACTORS BEGINNING ON PAGE 6.

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

The date of this Prospectus is May 28, 2010

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You should rely only on the information contained in this document or to which we have referred you. We have not authorized anyone to provide you with information that is different. This document may only be used where it is legal to sell these securities. The information in this document may only be accurate on the date of this document.

ABOUT THIS PROSPECTUS

This Prospectus is part of a registration statement that we filed with the Securities and Exchange Commission, or SEC, using a shelf registration or continuous offering process. Under this shelf registration process, selling stockholders may from time to time sell the securities described in this Prospectus in one or more offerings.

This Prospectus provides you with a general description of the securities that the selling stockholders may offer. A selling stockholder may be required to provide you with a prospectus supplement containing specific information about the selling stockholder and the terms of the securities being offered. That prospectus supplement

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may include additional risk factors or other special considerations applicable to those securities. A prospectus supplement may also add, update or change information in this Prospectus. If there is any inconsistency between this Prospectus and any prospectus supplement, you should rely on the information in that prospectus supplement. You should read both this Prospectus and any prospectus supplement together with the additional information described under the heading "Where You Can Find More Information" and with the information incorporated by reference as described below under the heading "Incorporation by Reference."

Unless we have indicated otherwise, the terms "Advanced Energy," "the Company," "we," "us," and "our" refer to Advanced Energy Industries, Inc.

FORWARD-LOOKING INFORMATION

This Prospectus includes or incorporates by reference forward-looking statements within the meanings of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. All statements other than statements of historical facts included or incorporated by reference in this Prospectus are forward-looking statements. Although we believe that the expectations reflected in these forward-looking statements are reasonable, we can not guarantee that these expectations will prove to be correct. Important factors that could cause actual results to differ materially from our expectations are listed below and elsewhere in this Prospectus, and they include the factors set forth under the heading "Risk Factors." All subsequent written and oral forward-looking statements attributable to us or persons acting on our behalf are expressly qualified in their entirety by these statements.

Some of the forward-looking statements included or incorporated by reference in this Prospectus are or reflect our expectations or projections relating to:

- our future revenues;
- our future gross profit;
- reducing our operating breakeven point;
- market acceptance of our products;
- the fair value of our assets and financial instruments;
- research and development expenses;
- selling, general and administrative expenses;
- sufficiency and availability of capital resources;
- capital expenditures;
- restructuring activities and expenses; and
- general global economic conditions.

We cannot always predict or determine after the fact what factors would cause actual results to differ materially from those indicated by our forward-looking statements or other statements. In addition, you are urged to consider statements that include the terms "believes," "belief," "expects," "plans," "objectives," "anticipates," "intends," or the like uncertain and forward-looking. All cautionary statements should

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be read as being applicable to all forward-looking statements wherever they appear. We do not undertake any obligation to update or revise any forward-looking statements.

INCORPORATION BY REFERENCE

The SEC allows us to incorporate by reference in this Prospectus the information in the documents that we file with it, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be a part of this Prospectus. Any information that is part of this Prospectus or any prospectus supplement that speaks as of a later date than any other information that is part of this Prospectus or any prospectus supplement updates or supersedes such other information. We incorporate by reference in this Prospectus the documents listed below and any documents or portions thereof that we file with the SEC on or after May 21, 2010 under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act and prior to the termination of the offering covered by this Prospectus:

Our Annual Report on Form 10-K for the fiscal year ended December 31, 2009 (filed February 26, 2010);

Our Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2010 (filed May 6, 2010);

Our Current Reports on Form 8-K filed February 16, 2010, March 11, 2010, March 24, 2010, April 22, 2010, April 25, 2010, April 28, 2010, May 3, 2010 and May 7, 2010 (except to the extent any such information is furnished and not filed with the SEC); and

The description of our common stock contained in our registration statement on Form 8-A, filed on October 12, 1995, including any amendment or reports filed for the purpose of updating such description.

You may obtain, free of charge, a copy of any or all of these documents (other than exhibits to these documents unless the exhibits are specifically incorporated by reference into these documents or referred to in this prospectus) by writing to us or calling us at the following address and phone number:

Investor Relations
Advanced Energy Industries, Inc.
1625 Sharp Point Drive,
Fort Collins, Colorado 80525
(970) 407-6555

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC a registration statement under the Securities Act that registers the distribution of the securities offered under this prospectus. The registration statement, including the attached exhibits and schedules and the information incorporated by reference, contains important information about our company and the securities. The rules and regulations of the SEC allow us to omit from this prospectus certain information included in this registration statement. In addition, we file annual, quarterly and current reports, proxy statements and other information with the SEC. You may inspect and, for a fee, copy the registration statement and any other document that we file with the SEC 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 Public Reference Room. You may also obtain the documents that we file electronically from the SEC's website at <http://www.sec.gov>. You may also find documents incorporated by reference in this prospectus on our website at www.advancedenergy.com. Information contained on our website is not a prospectus and does not constitute part of this prospectus.

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SUMMARY

The following summary is qualified in its entirety by the more detailed information and historical consolidated financial statements (including the Notes to those financial statements) incorporated by reference in this Prospectus. Investors should carefully consider the information in this Prospectus, including the information set forth under Risk Factors and the information incorporated by reference in this Prospectus.

Advanced Energy Industries, Inc.

Overview

We design, manufacture, sell and support industrial power conversion products that transform power into various usable forms. Our products enable manufacturing processes that use thin-film deposition for various products, such as semiconductor devices, flat panel displays, solar panels and architectural glass, as well as grid-tie power conversion in the solar market. We also supply gas flow control and thermal instrumentation products for measurement and control of gas flow and temperature in thin-film material processing for these same markets. Our network of global service support centers provides local repair and field service capability in key regions. Our installed base provides a recurring revenue opportunity as we offer repair services, conversions, upgrades and refurbishments to companies using our products.

Our products are used in diverse markets, applications and processes, including the manufacture of capital equipment for semiconductor devices, applications for solar panels and architectural glass (thin-film renewables) and for other thin film applications including flat panel displays, data storage and other industrial product coatings as well as the commercial solar inverter market. These markets are driven primarily by worldwide demand for consumer electronics and can be cyclical in nature. Therefore, demand for our products and our financial results can change as demand for manufacturing equipment and services change in response to consumer demand. Other factors, such as global economic and market conditions and technological advances in fabrication processes can also have an impact on our financial results, both positively and negatively.

We incorporated in Colorado in 1981 and reincorporated in Delaware in 1995. Our executive offices are located at 1625 Sharp Point Drive, Fort Collins, Colorado 80525, and our telephone number is 970-221-4670. We also maintain a website at www.advancedenergy.com. Except for any documents that are incorporated by reference into this prospectus that may be accessed from our website, the information available on or through our website is not part of this prospectus.

Our Products and Services

Our products fall primarily into the categories of Power Conversion, Flow Control and Thermal Instrumentation. Our products are designed to enable new process technologies, improve productivity and lower the cost of ownership for our customers. We also provide repair and maintenance services for all of our products.

POWER CONVERSION

Our power conversion systems include direct current (DC), pulsed DC mid frequency, and radio frequency (RF) power supplies, matching networks and RF instrumentation. We also have a line of photovoltaic (PV) inverters that offer advanced grid-tie PV solution for commercial system installations. Our PV inverter is designed to convert DC power from standard solar arrays to high-quality AC grid electricity enabling commercial installations to produce targeted output power levels. Our power conversion systems refine, modify and control the raw electrical power from a utility and convert it into power that may be customized and is predictable and repeatable. Our power conversion systems are primarily used by semiconductor, solar panel and similar thin-film manufacturers including flat panel display, data storage and architectural glass manufacturers.

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FLOW CONTROL

Our flow control products include thermal mass flow controllers (MFCs), pressure insensitive MFCs (PI-MFCs), pressure-based MFCs, liquid MFCs, liquid vapor delivery systems and pressure control systems. Our flow control products control or monitor the flow of high-purity liquids, liquid vapor and gases encompassing a wide range of input pressures. Our flow control products are primarily used in semiconductor, flat panel display and solar module manufacturing. They are also used in other industrial thin-film applications, and the fiber optics and silica industries.

THERMAL INSTRUMENTATION

Our thermal instrumentation products, used primarily in the semiconductor industry, provide temperature measurement and control solutions for applications in which time-temperature cycles affect productivity and yield. These products are used in rapid thermal processing, chemical vapor deposition and other semiconductor and solar applications requiring non-contact temperature measurement.

GLOBAL SUPPORT SERVICES

Our global support services group offers local in-warranty and out-of-warranty repair services in the regions in which our customers operate, also providing us with preventive maintenance opportunities. As semiconductor device manufacturers have become increasingly sensitive to the significant costs of system downtime, they have required that suppliers offer comprehensive local repair service and customer support. Our customers require customer support levels to enable them to repair, modify, upgrade and retrofit their equipment to improve yields and adapt new materials or processes. To meet these market requirements, we maintain a worldwide support organization in the United States, China, Japan, Korea, Taiwan, Germany and England. Our services group combines vast field data and years of experience with original equipment manufacturers (OEMs) to improve their feature-sets and statistically target service programs to prevent potential failures or problems before they occur and to extend the life of our customers' tools.

You should read the Risk Factors section beginning on page 6 and the other information in this Prospectus to understand the risks associated with an investment in the offered shares.

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RISK FACTORS

An investment in our common stock involves a high degree of risk. You should consider carefully the following risk factors, in addition to the other information set forth in this Prospectus, before deciding to purchase any common stock. Our business, financial condition or results of operations could be materially adversely affected by any of these risks. The trading price of the common stock could decline due to any of these risks, and you may lose all or part of your investment.

Risks Related to the Company

Raw material, part, component and subassembly shortages, exacerbated by our dependence on sole and limited source suppliers, could affect our ability to manufacture products and systems and could delay our shipments.

Our business depends on our ability to manufacture products that meet the rapidly changing demands of our customers. Our ability to manufacture our products timely depends in part on the timely delivery of raw materials, parts, components and subassemblies from suppliers. We rely on sole and limited source suppliers for some of our raw materials, parts, components and subassemblies that are critical to the manufacturing of our products. This reliance involves several risks, including the following:

inability to obtain an adequate supply of required parts, components or subassemblies;

supply shortages, if a sole or limited source provider ceases operations;

the need to fund the operating losses of a sole or limited source provider;

reduced control over pricing and timing of delivery of raw materials and parts, components or subassemblies;

need to qualify alternative suppliers which could be time consuming and lead to delays in, or prevention of delivery of products to our customers, as well as increased costs; and

inability of our suppliers to develop technologically advanced products to support our growth and development of new products.

If we are unable to qualify additional suppliers and manage relationships with our existing and future suppliers successfully, if our suppliers experience financial difficulties including bankruptcy or if our suppliers cannot meet our performance or quality specifications or timing requirements, we may experience shortages, delays or increased costs of raw materials, parts, components or subassemblies. This in turn could limit or prevent our ability to manufacture and ship our products, which could materially and adversely affect our relationships with our current and prospective customers and our business, financial condition and results of operations. Some of our sole or limited source suppliers have given us notice that they are ending supply of critical parts, components and subassemblies that are required for us to deliver product. In those cases, we have been required to make last time buys of such supplies in advance of product demand from our customers. If we cannot qualify alternative suppliers before these end-of life supplies are utilized in our products, we may be unable to deliver further product to our customers. To mitigate the risk of not having a supply of critical parts, components and subassemblies for our products, we have pro-actively made additional purchases which we believe addresses such risk.

Our orders of raw materials, parts, components and subassemblies are based upon quarterly demand forecasts.

We place orders with many of our suppliers based upon our customers' quarterly forecasts. These forecasts are based upon our customers' expectations as to demand for our products. As the quarter progresses, such demand can change rapidly or we may realize that our customers' expectations were overly optimistic, especially during a downturn in the industry and other adverse economic conditions. These orders cannot always be amended in

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response. In addition, in order to assure availability of certain components or to obtain priority pricing, we have entered into contracts with some of our suppliers that require us to purchase a specified amount of components and subassemblies each quarter, even if we are not able to use such components or subassemblies. Moreover, we have obligations to some of our customers to hold a minimum amount of finished goods in inventory, in order to fulfill just in time orders, regardless of whether the customers expect to place such orders. We currently have firm purchase commitments and agreements with various suppliers to ensure the availability of components. Our obligation to our suppliers at March 31, 2010 under these purchase commitments was \$64.9 million. In 2009, we negotiated reductions in the purchase commitments with some of our suppliers to address the severe decline in our need for such raw materials, parts, components and subassemblies. As the markets we serve recover from the economic downturn, particularly the semiconductor capital equipment market, we may be unable to successfully procure parts quickly enough to meet customer demand for our products, which can have a material adverse effect on our revenue and results of operations.

We are exposed to risks associated with the ongoing financial crisis and weakening global economy.

Our business depends on the expansion of manufacturing capacity in our end markets and the installation base for the products we sell. The recent severe tightening of the credit markets, turmoil in the financial markets, recent instability in the European Union and the Euro, and weakening global economy could contribute to contractions and adverse changes in the industries in which we operate. These changes could worsen if the current economic conditions are prolonged or deteriorate further. Our markets depend largely on consumer spending and economic uncertainty exacerbates negative trends in consumer spending and may cause our customers to push out, cancel, or refrain from placing equipment orders.

Difficulties in obtaining capital and deteriorating market conditions may also lead to the inability of some customers to obtain affordable financing, resulting in a reduction of our sales and greater instances of nonpayment. These conditions may similarly affect our key suppliers, which could affect their ability to deliver parts and result in delays for our products. Further, these conditions and uncertainty about future economic conditions make it challenging for us to forecast our operating results and evaluate the risks that may affect our business, financial condition and results of operations. A significant percentage of our expenses are relatively fixed and based in part on expectations of future net sales. If a sudden decrease in demand for our products from one or more customers were to occur, the inability to adjust spending quickly enough to compensate for any shortfall would magnify the adverse impact of a shortfall in net sales on our results of operations.

The industries in which we compete are volatile and unpredictable.

As a supplier to the global semiconductor, flat panel display, solar and related industries, we are subject to business cycles, the timing, length and volatility of which can be difficult to predict. These industries historically have been cyclical due to sudden changes in customers' manufacturing capacity requirements and spending, which depend in part on capacity utilization, demand for customers' products, inventory levels relative to demand, and access to affordable capital. These changes have affected the timing and amounts of customers' purchases and investments in technology, and continue to affect our orders, net sales, operating expenses and net income. In addition, we may not be able to respond adequately or quickly to the declining demand by reducing our costs. We may be required to record significant reserves for excess and obsolete inventory as demand for our products changes.

To meet rapidly changing demand in each of the industries we serve, we must effectively manage our resources and production capacity. During periods of decreasing demand for our products, we must be able to appropriately align our cost structure with prevailing market conditions; effectively manage our supply chain; and motivate and retain key employees. During periods of increasing demand, we must have sufficient manufacturing capacity and inventory to meet customer demand; effectively manage our supply chain; and attract, retain and motivate a sufficient number of qualified individuals. If we are not able to timely and appropriately adapt to changes in our business environment, our business, financial condition or results of operations may be materially and adversely affected.

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Reduced product demand in the semiconductor equipment industry has a negative impact on our results of operations.

Our business is affected by the capital equipment expenditures of semiconductor manufacturers, which in turn is affected by the current and anticipated market demand for integrated circuits and products using integrated circuits. The semiconductor industry is cyclical in nature and historically experiences periodic downturns. Business conditions historically have changed rapidly and unpredictably.

Fluctuating levels of investment by semiconductor manufacturers could continue to materially affect our revenues and operating results. Where appropriate, we will attempt to respond to these fluctuations with cost management programs aimed at aligning our expenditures with anticipated revenue streams, which sometimes result in restructuring charges. Even during periods of reduced revenues, we must continue to invest in research and development and maintain extensive ongoing worldwide customer service and support capabilities to remain competitive, which may have a temporary adverse effect on our results of operations.

We are exposed to risks as a result of ongoing changes specific to the solar industry.

An increasing portion of our business is in the emerging solar market, which, in addition to the general industry changes described above in the risk factor *The industries in which we compete are volatile and unpredictable*, is also characterized by ongoing changes particular to the solar industry. Our business is subject to changes in technology or demand for solar products arising from, among other things, adoption of our products by our customers, compatibility of our technology with our customers' products, customers' and end-users' access to affordable financial capital, the cost and performance of solar technology compared to other energy sources, the adequacy of or changes in government energy policies, including the availability and amount of government incentives for solar power, and the extent of investment or participation in solar by utilities or other companies that generate, transmit or distribute power to end users.

If we do not successfully manage the risks resulting from these ongoing changes occurring in the solar industry, we may miss out on substantial opportunities for revenue and our business, financial condition and results of operations could be materially and adversely affected.

We will make substantial capital expenditures and commitments to meet anticipated demand for our solar inverters.

We have invested and will continue to invest significant human and financial resources in the development, marketing and sale of our solar inverters. To increase our manufacturing capacity for our solar inverters in order to meet anticipated demand, we have purchased equipment, leased new facilities and made other capital expenditures and commitments. These additional expenditures and commitments have increased, and may continue to increase our overhead expenses during a time when our operations are not fully absorbing current overhead expenses. The impact could lower gross margins until such time that revenue related to sale of our solar inverters can fully absorb overhead expenses.

We have transferred and continue to transfer the production of substantially all of our product lines to our manufacturing facility in Shenzhen, China, and may experience unforeseen difficulties and challenges with these operations.

We have invested and will continue to invest significant human and financial resources to utilize our manufacturing facility in Shenzhen, China. These investments, such as the transition of legacy product lines, are made with the goal of reducing our overall global production costs by increasing our workforce in China and correspondingly decreasing our workforce in the United States. We cannot always predict with certainty the impact that these transitions will have on our operating results. We may incur unforeseen costs with respect to this facility, product transitions and the related workforce mix changes that could have an adverse effect on our results of operations.

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Our operations in China are subject to significant political and economic uncertainties over which we have little or no control and may be unable to alter our business practice in time to avoid reductions in revenues.

A significant portion of our operations outside the United States are located in China, which exposes us to risks, such as exchange controls and currency restrictions, changes in local economic conditions, changes in Chinese laws and regulations, possible expropriation or other Chinese government actions, and unsettled political conditions. These factors may have a material adverse effect on our operations or on our business, results of operations and financial condition.

China's economy differs from the economies of most developed countries in many respects, including with respect to the amount of government involvement, level of development, growth rate, control of foreign exchange and allocation of resources. While the People's Republic of China economy has experienced significant growth in the past 20 years, growth has been uneven across different regions and among various economic sectors of China. The People's Republic of China government has implemented various measures to encourage economic development and guide the allocation of resources. Some of these measures benefit the overall People's Republic of China economy, but may also have a negative effect on us. For example, our financial condition and results of operations may be adversely affected by government control over capital investments or changes in tax regulations that are applicable to us.

We transitioned a significant amount of our supply base to Asian suppliers.

We transitioned the purchasing of a substantial portion of components for our products, and continue to consider transitioning additional purchasing, to Asian suppliers to lower our materials costs and shipping expenses. These components might require us to incur higher than anticipated testing or repairing costs, which would have an adverse effect on our operating results. Customers who have strict and extensive qualification requirements might not accept our products if these lower-cost components do not meet their requirements. A delay or refusal by our customers to accept such products, as well as an inability of our suppliers to meet our purchasing requirements, might require us to purchase higher-priced components from our existing suppliers or might cause us to lose sales to these customers, either of which could lead to decreased revenue and gross margins and have an adverse effect on our results of operations.

Changes in tax rules, tax liabilities, or utilization of our deferred tax assets could materially affect our results.

Our future annual and quarterly tax rates could be affected by numerous factors, including changes in the applicable tax laws, composition of earnings in countries with differing tax rates or our valuation and utilization of deferred tax assets and liabilities. On December 31, 2009, we transferred the economic rights to our patents and know-how from other affiliates throughout the world, including the parent company, to realign our Chinese manufacturing operations with the intellectual property utilized in such manufacturing. As a result of this realignment, we generated \$84.4 million of taxable income in the United States and Japan and, thus, reversed a portion of our valuation allowance and will utilize previously reserved deferred tax assets upon filing of our 2009 tax return.

In general, we are subject to regular examination of our income tax returns by the Internal Revenue Service and other tax authorities. We regularly assess the likelihood of favorable or unfavorable outcomes resulting from these examinations to determine the adequacy of our provision for income taxes. Although we believe our tax estimates and reserves against deferred tax assets and uncertain tax positions are reasonable, including those relied upon in the execution of our entity restructuring, there can be no assurance that any final determination will not be materially different from the treatment reflected in our current or historical income tax provisions and accruals, which could materially and adversely affect our results of operations.

A significant portion of our sales and accounts receivable are concentrated among a few customers.

Our ten largest customers accounted for 47% of our sales in 2009, 50% of our sales in 2008, and 61% of our sales in 2007. Applied Materials Inc., our largest customer, accounted for 20% of our sales in 2009, 21% of our

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sales in 2008, and 29% of our sales in 2007. No other single customer accounted for more than 10% of our sales during 2009, 2008 or 2007. If we were to lose any of our significant customers or suffer a material reduction in their purchase orders, revenue could decline and our business, financial condition and results of operations could be materially and adversely affected.

Market pressures may reduce or eliminate our profitability.

Our customers continually exert pressure on us to reduce our prices and extend payment terms, and our suppliers continue to push us for increased pricing. Given the nature of our customer base and the highly competitive markets in which we compete, we may be required to reduce our prices or extend payment terms to remain competitive. We may not be able to reduce our expenses in an amount sufficient to offset potential margin declines.

We generally have no long-term contracts with our customers requiring them to purchase any specified quantities from us.

Our sales are primarily made on a purchase order basis, and we generally have no long-term purchase commitments from our customers, which is typical in the industries we serve. As a result, we are limited in our ability to predict the level of future sales or commitments from our current customers, which may diminish our ability to allocate labor, materials and equipment in the manufacturing process effectively. In addition, we may accumulate inventory in anticipation of sales that do not materialize, resulting in excess and obsolete inventory write-offs.

If we are unable to adjust our business strategy successfully for some of our product lines to reflect the increasing price sensitivity on the part of our customers, our business and financial condition could be harmed.

Our business strategy for many of our product lines has been focused on product performance and technology innovation to provide enhanced efficiencies and productivity. As a result of recent economic conditions and changes in various markets that we serve, our customers have experienced significant cost pressures and, as a result, we have observed increased price sensitivity on the part of our customers. If competition against any of our product lines should come to focus solely on price rather than on product performance and technology innovation, we will need to adjust our business strategy and product offerings accordingly and, if we are unable to do so, our business, financial condition and results of operations could be materially and adversely affected.

The markets in which we operate are highly competitive.

We face substantial competition, primarily from established companies, some of which have greater financial, marketing and technical resources than we do. We expect our competitors will continue to develop new products in direct competition with our products, improve the design and performance of their products and introduce new products with enhanced performance characteristics.

To remain competitive, we must improve and expand our products and product offerings. In addition, we may need to maintain a high level of investment in research and development and expand our sales and marketing efforts, particularly outside of the United States. We might not be able to make the technological advances and investments necessary to remain competitive. If we were unable to improve and expand our products and product offerings, our business, financial condition and results of operations could be materially and adversely affected.

Our competitive position could be weakened if we are unable to convince end users to specify that our products be used in the equipment sold by our customers.

The end users in our markets may direct equipment manufacturers to use a specified supplier's product in their equipment at a particular facility. This occurs with frequency because our products are critical in manufacturing process control for thin-film applications. Our success therefore, depends in part on our ability to have end users specify that our products be used at their facilities. In addition, we may encounter difficulties in

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changing established relationships of competitors that already have a large installed base of products within such facilities.

Our products may suffer from defects or errors leading to damage or warranty claims.

Our products use complex system designs and components that may contain errors or defects, particularly when we incorporate new technology into our products or release new versions. If any of our products are defective, we might be required to redesign or recall those products or pay damages or warranty claims and suffer significant harm to our reputation. We accrue a warranty reserve for estimated costs to provide warranty services, including the cost of technical support, product repairs, and product replacement for units that cannot be repaired. Our estimate of costs to fulfill our warranty obligations is based on historical experience and expectation of future conditions. To the extent we experience increased warranty claim activity or increased costs associated with servicing those claims, our warranty accrual will increase, resulting in decreased gross profit.

We must achieve design wins to retain our existing customers and to obtain new customers, although design wins achieved do not necessarily result in substantial sales.

The constantly changing nature of technology in the markets we serve causes equipment manufacturers to continually design new systems. We must work with these manufacturers early in their design cycles to modify our equipment or design new equipment to meet the requirements of their new systems. Manufacturers typically choose one or two vendors to provide the components for use with the early system shipments. Selection as one of these vendors is called a design win. It is critical that we achieve these design wins in order to retain existing customers and to obtain new customers.

We believe that equipment manufacturers often select their suppliers based on factors including long-term relationships and end user demand. Accordingly, we may have difficulty achieving design wins from equipment manufacturers who are not currently our customers. In addition, we must compete for design wins for new systems and products of our existing customers, including those with whom we have had long-term relationships. Our efforts to achieve design wins are time consuming and expensive, and may not be successful. If we are not successful in achieving design wins, or if we do achieve design win but our customers' systems that utilize our products are not successful, our business, financial condition and results of operations could be materially and adversely impacted.

Once a manufacturer chooses a component for use in a particular product, it is likely to retain that component for the life of that product. Our sales and growth could experience material and prolonged adverse effects if we fail to achieve design wins. However, design wins do not always result in substantial sales, as sales of our products are dependent upon our customers' sales of their products.

We are subject to risks inherent in international operations.

Sales to our customers outside the United States were approximately 57% of our total sales in 2009, 58% in 2008, and 46% in 2007. Our success competing in international markets is subject to our ability to manage various risks and difficulties, including, but not limited to:

our ability to effectively manage our employees at remote locations who are operating in different business environments from the United States;

our ability to develop relationships with suppliers and other local businesses;

compliance with product safety requirements and standards that are different from those of the United States;

variations and changes in laws applicable to our operations in different jurisdictions, including enforceability of intellectual property and contract rights;

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trade restrictions, political instability, disruptions in financial markets and deterioration of economic conditions;

customs regulations and the import and export of goods;

the ability to provide sufficient levels of technical support in different locations;

our ability to obtain business licenses that may be needed in international locations to support expanded operations;

timely collecting accounts receivable from foreign customers; and

changes in tariffs, taxes and foreign currency exchange rates or devaluation.

Our ability to implement our business strategies, maintain market share and compete successfully in international markets will be compromised if we are unable to manage these and other international risks successfully.

We are subject to risks related to holding financial instruments in foreign countries.

A significant portion of our cash, cash equivalents and marketable securities have historically been held in accounts in Germany. We held \$44.8 million of cash, cash equivalents and marketable securities in Germany as of March 31, 2010. Repatriation of such cash is subject to limitations and may be subject to significant taxation. We cannot be certain that we will be able to repatriate such cash on favorable terms or in a timely manner. If we incur losses in our operations and need the cash held in these international accounts, but are unable to repatriate such cash in a timely manner, we may be prevented from taking advantage of business opportunities that arise or from executing some of our business plans, either of which could cause our business, financial condition or results of operations to be materially and adversely affected.

Unfavorable currency exchange rate fluctuations may lead to lower operating margins, or may cause us to raise prices, which could result in reduced sales.

Currency exchange rate fluctuations could have an adverse effect on our sales and results of operations and we could experience losses with respect to forward exchange contracts into which we may enter. Unfavorable currency fluctuations could require us to increase prices to foreign customers, which could result in lower net sales by us to such customers. Alternatively, if we do not adjust the prices for our products in response to unfavorable currency fluctuations, our results of operations could be materially and adversely affected. In addition, most sales made by our foreign subsidiaries are denominated in the currency of the country in which these products are sold and the currency they receive in payment for such sales could be less valuable at the time of receipt as a result of exchange rate fluctuations. From time to time, we enter into forward exchange contracts and local currency purchased options to reduce currency exposure arising from intercompany sales of inventory. However, we cannot be certain that our efforts will be adequate to protect us against significant currency fluctuations or that such efforts will not expose us to additional exchange rate risks, which could adversely affect our results of operations.

Changes in the value of the Chinese yuan could impact the cost of our operation in Shenzhen, China.

The Chinese government is continually pressured by its trading partners to allow its currency to float in a manner similar to other major currencies. Any change in the value of the Chinese yuan may impact our ability to control the cost of our products in the world market. Specifically, the decision by the Chinese government to allow the yuan to begin to float against the United States dollar could significantly increase the labor and other costs incurred in the operation of our Shenzhen facility and the cost of raw materials, parts, components and subassemblies that we source in China, thereby having a material and adverse effect on our financial condition and results of operations.

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We are highly dependent on our intellectual property.

Our success depends significantly on our proprietary technology. We attempt to protect our intellectual property rights through patents and non-disclosure agreements; however, we might not be able to protect our technology, and competitors might be able to develop similar technology independently. In addition, the laws of some foreign countries might not afford our intellectual property the same protections as do the laws of the United States. Our intellectual property is not protected by patents in several countries in which we do business, and we have limited patent protection in other countries, including China. The cost of applying for patents in foreign countries and translating the applications into foreign languages requires us to select carefully the inventions for which we apply for patent protection and the countries in which we seek such protection. Generally, our efforts to obtain international patents have been concentrated in the European Union and certain industrialized countries in Asia, including Korea, Japan and Taiwan. If we are unable to protect our intellectual property successfully, our business, financial condition and results of operations could be materially and adversely affected.

China commercial law is relatively undeveloped compared to the commercial law in the United States. Limited protection of intellectual property is available under Chinese law. Consequently, manufacturing our products in China may subject us to an increased risk that unauthorized parties may attempt to copy our products or otherwise obtain or use our intellectual property. We cannot give assurance that we will be able to protect our intellectual property rights effectively or have adequate legal recourse in the event that we encounter infringements of our intellectual property in China.

Our acquisitions might not be successful.

On May 3, 2010, we completed our acquisition of PV Powered, Inc., a manufacturer of grid-tied PV inverters in the residential, commercial, and utility-scale markets. We continually evaluate and may in the future pursue opportunities, some of which could be significant, to acquire additional businesses or technologies complementary to our own that are intended to enhance our product offerings or expand market opportunities for our products. The success of such transactions will depend on, among other things, our ability to integrate assets and personnel acquired in these transactions. Furthermore, we may not realize the degree or timing of benefits we anticipated when we first enter into an acquisition transaction. Additional risks we could face from our acquisition of PV Powered and from additional acquisitions, include:

- inability to integrate acquired businesses into our operations;
- diversion of our management's attention;
- ability to apply our internal controls process to these acquired businesses;
- actual costs associated with integration or realizing anticipated benefits are higher than expected;
- potential increased debt leverage;
- litigation arising from acquisition activity; and
- unanticipated problems or liabilities.

If actual integration costs are higher than amounts assumed, if we are unable to integrate the assets and personnel acquired in an acquisition as anticipated, or if we are unable to fully benefit from anticipated synergies, our business, financial condition, results of operations and cash flows could be materially adversely affected.

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We have been, and in the future may again be, involved in litigation. Litigation is costly and could result in further restrictions on our ability to conduct business or an inability to prevent others from using technology or make use of market relationships we have developed.

Litigation may be necessary to enforce our commercial or property rights, to defend ourselves against claimed violations of such rights, or to protect our interests in regulatory disputes or similar matters. Litigation often requires substantial management time and attention, as well as financial and other resources, including:

substantial costs in the form of legal fees, fines and royalty payments;

restrictions on our ability to sell certain products or in certain markets;

an inability to prevent others from using technology we have developed; and

a need to redesign products or seek alternative marketing strategies.

Any of these events could have a significant adverse effect on our business, financial condition and results of operations.

Funds associated with auction rate securities that we have traditionally held as short-term investments may not be liquid or readily available.

Our investment securities include auction rate securities, or ARS, that are not available to convert to cash until June 30, 2010. In November 2008, we executed a non-transferrable auction rate securities rights agreement, or the Put Agreement, with a financial institution that provides us with the ability to sell certain of our ARS to a financial institution, at our sole discretion, and obligates the financial institution to purchase such ARS, at par during the period of June 30, 2010 through July 2, 2012. Our ARS holdings to which the Put Agreement relates have a cost basis of approximately \$21.6 million and a fair value of approximately \$18.3 million at March 31, 2010. \$19.6 million of the par value of ARS are in student loan securities and the remaining \$2.0 million are in municipal securities. Additionally, the Put Agreement had a fair value of \$3.2 million at March 31, 2010. The benefits of the Put Agreement are subject to the continued performance by the financial institution of its obligations under the Put Agreement.

We will not be able to utilize the Put Agreement to liquidate our ARS before June 30, 2010. Pursuant to the Put Agreement, as of June 2, 2009, we entered into a Credit Line Agreement with UBS Bank. The Credit Line Agreement provides us with an uncommitted, demand revolving line of credit (an intended no net cost loan) of approximately \$16.3 million that is secured by our ARS.

The lack of liquidity associated with these investments may require us to borrow against the no net cost loan or repatriate cash from international locations at a significant cost. In light of current economic conditions and other factors, we cannot be certain that we will be able to borrow against these securities or continue to repatriate cash, on favorable terms or at all. If we are unable to do so, our available cash may be reduced until some or all of our ARS can be liquidated. The lack of available cash may prevent us from taking advantage of business opportunities that arise and may prevent us from executing some of our business plans, either of which could cause our business, financial condition or results of operations to be materially and adversely affected.

Our intangible assets may become impaired.

We had \$5.8 million in intangible assets as of March 31, 2010, and will have additional intangible assets as a result of our acquisition of PV Powered, Inc. in May 2010. We periodically review the estimated value and useful lives of our identifiable intangible assets, taking into consideration any events or circumstances that might result in either a diminished fair value or revised useful life. The events and circumstances include significant changes in the business climate, legal factors, operating performance indicators and competition. Any impairment charges or

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changes in useful life could have a material and adverse effect on our financial position and results of operations, and could harm the trading price of our common stock.

We are subject to numerous governmental regulations.

We are subject to federal, state, local and foreign regulations, including environmental regulations and regulations relating to the design and operation of our products and control systems. We might incur significant costs as we seek to ensure that our products meet safety and emissions standards, many of which vary across the states and countries in which our products are used. In the past, we have invested significant resources to redesign our products to comply with these directives. Compliance with future regulations, directives and standards could require us to modify or redesign some products, make capital expenditures or incur substantial costs. If we do not comply with current or future regulations, directives and standards:

we could be subject to fines;

our production or shipments could be suspended; and

we could be prohibited from offering particular products in specified markets.

If we were unable to comply with current or future regulations, directives and standards our business, financial condition and results of operations could be materially and adversely affected.

The loss of any of our key personnel could significantly harm our results of operations and competitive position.

Our success depends to a significant degree upon the continuing contributions of our key management, technical, marketing and sales employees. There can be no assurance that we will be successful in retaining our key employees or that we can attract or retain additional skilled personnel as required. Many of the stock options held by our employees have exercise prices that are higher than the current trading price of our common stock, and these underwater options do not serve their purpose as incentives for our employees to remain with the company. Failure to retain or attract key personnel could significantly harm our results of operations and competitive position.

Risks Related to Our Common Stock

The market price of our common stock has fluctuated and may continue to fluctuate for reasons over which we have no control and your investment in our common stock could decrease in value.

The stock market has from time to time experienced, and is likely to continue to experience, extreme price and volume fluctuations. Prices of securities of technology companies have been especially volatile and have often fluctuated for reasons that are unrelated to their operating performance. In the past, companies that have experienced volatility in the market price of their stock have been the subject of securities class action litigation. If we were the subject of securities class action litigation, it could result in substantial costs and a diversion of our management's attention and resources. Additionally, broad market fluctuations may negatively affect the market price of our common stock. You may not be able to resell your shares of common stock at or above the price you pay for those shares due to fluctuations in the market price caused by changes in our operating performance or prospects and other factors, including, among others:

actual or anticipated fluctuations in our operating results or future prospects;

our announcements or our competitors' announcements of new products;

public reaction to our press releases, our other public announcements and our filings with the SEC;

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strategic actions by us or our competitors;

changes in financial markets or general economic conditions;

our ability to raise additional capital as needed; and

changes in stock market analyst recommendations or earnings estimates regarding our common stock, other comparable companies or our industry generally.

Our Chairman of the Board owns a significant percentage of our outstanding common stock, which could enable him to influence our business and affairs, and future sales of our common stock by our Chairman of the Board may negatively affect the market price of our common stock.

Douglas S. Schatz, our Chairman of the Board, beneficially owned approximately 13% of our outstanding common stock as of May 3, 2010. This stockholding gives Mr. Schatz significant voting power and influence. Depending on the number of shares that abstain or otherwise are not voted on a particular matter, Mr. Schatz may be able to elect all of the members of our board of directors and to influence our business affairs for the foreseeable future in a manner with which our other stockholders may not agree. In addition, the sale of a substantial amount of the shares beneficially owned by him could negatively affect the market price of our common stock.

On April 27, 2010, Mr. Schatz and his wife Jill E. Schatz, as trustees of The Douglas S. Schatz and Jill E. Schatz Family Trust U/A DTD 3/26/02, adopted a selling plan pursuant to Rule 10b5-1 of the Securities Exchange Act of 1934, as amended, which provides for the sale of up to a total of \$9,000,000 in shares of our common stock beginning May 12, 2010. Shares will be sold under this selling plan on the open market at prevailing market prices and subject to minimum price thresholds specified in the plan. The plan will terminate on July 30, 2010, even if all shares subject to the plan have not been sold. The plan was established as part of the Mr. and Mrs. Schatz's personal long term strategy for asset diversification and liquidity. Rule 10b5-1 permits officers and directors of public companies to adopt pre-determined plans for buying or selling specified amounts of stock if the plan is adopted at a time when the purchaser or seller is not aware of any material non-public information.

We may require additional capital in the future and we cannot assure you that capital will be available on reasonable terms, if at all, or on terms that would cause substantial dilution to your stock holdings.

If capital requirements vary materially from those currently planned, we may require additional capital sooner than expected. There can be no assurance that such capital will be available in sufficient amounts or on terms acceptable to us, if at all, especially in light of the state of the current financial markets. Any sale of a substantial number of additional shares may cause dilution to your investment and could cause the market price of our common stock to decline.

Sales of a substantial number of shares of our common stock in the public market, including the shares offered under this Prospectus and under other registration statements, could lower our stock price and impair our ability to raise funds in new stock offerings.

We have 43,172,525 shares of common stock outstanding as of May 20, 2010. Under the registration statement of which this prospectus is a part, we are registering the resale of up to 997,966 shares of common stock issued to the selling stockholders in connection with our acquisition of PV Powered, Inc. on May 3, 2010. If the selling stockholders or our other stockholders sell substantial amounts of our common stock, the market price of our common stock could decrease. In addition, we may sell additional common shares in subsequent offerings.

We cannot predict the size of future issuances of common shares or the effect, if any, that future issuances and sales of common stock, including the shares offered under this registration statement, other registration statements, and shares available for resale under Rule 144 under the Securities Act, or the perception that such sales could occur, may have on the market price of our common stock or our ability to raise additional capital through the

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sale of equity securities. With any additional issuance of common stock, investors will suffer dilution and we may experience dilution in our earnings per share.

We do not anticipate paying any dividends in the foreseeable future.

We do not intend to declare any dividends in the foreseeable future. Investors who require income from dividends should not purchase our securities.

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We will not receive any proceeds from the sale by any selling stockholders of the shares of our common stock in this offering. All proceeds will be received by the selling stockholders. See Selling Stockholders .

SELLING STOCKHOLDERS

This prospectus relates to the possible resale from time to time of up to 997,966 shares of our common stock issued to the selling stockholders who received these shares as the former stockholders of PV Powered, Inc. pursuant to the Agreement and Plan of Merger by and among Advanced Energy, PV Powered, Inc. and Neptune Acquisition Sub, Inc. dated March 24, 2010, as amended on April 21, 2010. The following table presents information regarding the number of shares of our common stock being offered by and beneficially owned by each selling stockholder as of May 20, 2010 and assumes the sale of all shares of our common stock offered pursuant to this prospectus. Except as may be provided below, none of the selling stockholders has, or had, any position, office or other material relationship with us or any of our affiliates beyond their investment in or receipt of our securities. The percentage of beneficial ownership is calculated on the basis of 43,172,525 shares of our common stock outstanding as of May 20, 2010.

The following table is prepared based on information supplied to us by the selling stockholders. Although we have assumed for purposes of the table below that the selling stockholders will sell all of the shares offered by this prospectus, because the selling stockholders may offer from time to time all or some of their shares covered under this prospectus, or in another permitted manner, no assurances can be given as to the actual number of shares that will be resold or continue to be held by the selling stockholders. In addition, the selling stockholders may have sold, transferred or otherwise disposed of the common stock in transactions exempt from the registration requirements of the Securities Act, since the date the selling stockholders provided the information regarding their securities holdings. Each selling stockholder warranted and covenanted to us that the selling stockholder is not a broker-dealer or an affiliate of a broker-dealer within the meaning of U.S. securities laws, purchased the common stock in the ordinary course of business and did not have, directly or indirectly, any intention of distributing any of the common stock or any agreement, arrangement or understanding with any other persons regarding the distribution of the common stock.

The selling stockholders named below, including their transferees, pledges, donees or other successors, may from time to time offer and sell any or all of the shares of common stock offered by this prospectus:

Name of Selling Holder	Beneficial Ownership Before this Offering:		Shares of Common Stock That May Be Offered (1)	Beneficial Ownership After this Offering:	
	Number of Shares	Percentage		Number of Shares (2)	Percentage (2)
Travis A. Bizjack	973	*	973		*
Robert E. Cavanagh	2	*	2		*
Robert Chamberlain	14	*	14		*
Edward H. Coale and Martha L. Coale, JTWROS	3,116	*	3,116		*
Ellen Cole and Michael Daum, JTWROS	1	*	1		*

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Name of Selling Holder	Beneficial Ownership Before this Offering:		Shares of Common Stock That May Be Offered (1)	Beneficial Ownership After this Offering:	
	Number of Shares	Percentage		Number of Shares (2)	Percentage (2)
Custodian FBO Erica I. Gustafson (3)	3,559	*	3,559		*
Custodian FBO Kristy E. Gustafson (4)	3,559	*	3,559		*
Custodian FBO Shane C. Gustafson (5)	3,559	*	3,559		*
Jonathan L. Dodge	1,030	*	1,030		*
Krystal Duncan	687	*	687		*
William L. Erdman	57	*	57		*
Evans Renewable Holdings II, LLC (6)	734,511	1.7%	734,511		*
Gwil Evans (7)	13,598	*	13,598		*
Mason Evans (8)	8,589	*	8,589		*
Alex Faveluke and Lisa Faveluke, JTWROS	2	*	2		*
John Michael Fife	5,195	*	5,195		*
Mark Fleischauer (9)	8,600	*	8,600		*
Dolores Fredericks and Douglas Ostergaard, JTWROS	1	*	1		*
Scott Goodman	2	*	2		*
Brian J. Hoffman	6,470	*	6,470		*
Steven G. Hummel (10)	21,914	*	21,914		*
Marc Johnson	1,030	*	1,030		*
James Johnstone	5	*	5		*
Lance E. Kasari	1,030	*	1,030		*
Kent Family Trust u/t/a dated 6/5/1997 (11)	8,157	*	8,157		*
Roger Laubacher (12)	14,380	*	14,380		*
Jeffrey L. Mark	45	*	45		*
Casey Miller	2,104	*	2,104		*
Michael Mills-Price	1,546	*	1,546		*
Richard Morton	1,364	*	1,364		*
NTC & Co. FBO Mary K. Gustafson (13)	8,776	*	8,776		*
Sarah Orton	973	*	973		*
Robert R. Osborn	1,493	*	1,493		*
Gregg Patterson (14)	43,727	*	43,727		*
Erick Petersen (15)	16,380	*	16,380		*
Carina A. Peterson	2,986	*	2,986		*

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Jay Pine	2	*	2	*
Pine Beach Holdings LLC (16)	10,464	*	10,464	*
Kevin Purdy	801	*	801	*
PV Chicago, LLC (17)	51,189	*	51,189	*
PVP Oregon, LLC (18)	203	*	203	*
Tucker Ruberti	4,479	*	4,479	*
Mesa Scharf	1,775	*	1,775	*

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Name of Selling Holder	Beneficial Ownership Before this Offering:		Shares of Common Stock That May Be Offered (1)	Beneficial Ownership After this Offering:	
	Number of Shares	Percentage		Number of Shares (2)	Percentage (2)
Tod L. Snider	1,431	*	1,431		*
The Souther Company (19)	1,678	*	1,678		*
Marilyn Spracker	1,422	*	1,422		*
The Taylor Revocable Living Trust (20)	66	*	66		*
Tozer Joint Trust u/t/a dated 6/6/2002 (21)	1	*	1		*
Eric J. Valleton	1,488	*	1,488		*
Garrett Wilson	3,484	*	3,484		*

* Indicates less than 1%.

(1) There are currently no agreements, arrangements or understandings with respect to the resale of any of the shares covered by this prospectus. We do not know when or in what amounts the selling stockholders may offer shares of our common stock for sale. The selling stockholders will act independently of us in making decisions with respect to the

timing, manner and size of each sale and might not sell any or all of the shares offered by this prospectus.

- (2) Assumes all of the shares of common stock offered by this prospectus are sold and that any future transferees, pledgees, donees or successors of or from any such other holders of common stock, do not beneficially own any of our common stock other than common stock issued under the Agreement and Plan of Merger.
- (3) Shares are held in a custodial account for the benefit of Erica I. Gustafson who is the beneficial owner of the shares.
- (4) Shares are held in a custodial account for the benefit of Kristy E. Gustafson who is the beneficial owner of the shares.

(5)

Shares are held in a custodial account for the benefit of Shane C. Gustafson who is the beneficial owner of the shares.

(6) Mark Fleischauer and Mason Evans are co-managers of Evans Renewable Holdings II, LLC and have investment power and voting control over the shares. Mr. Fleischauer and Mr. Evans disclaim beneficial ownership of such shares, except to the extent of their pecuniary interests in them.

(7) Gwil Evan is a former director of PV Powered, Inc. The share amounts do not include 203 shares held by PVP Oregon, LLC. Mr. Evans is the manager of PVP Oregon, LLC and has investment power and voting control over such shares. Mr. Evans disclaims

beneficial
ownership of
such shares,
except to the
extent of his
pecuniary
interest in them.

- (8) Mason Evans is a former director of PV Powered, Inc. The share amounts do not include 734,511 shares held by Evans Renewable Holdings II, LLC. Mr. Evans is the co-manager of such entity and has investment power and voting control over such shares. Mr. Evans disclaims beneficial ownership of such shares, except to the extent of his pecuniary interest in them.

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- (9) Mark Fleischauer is a director of PV Powered, Inc. and is acting as the Shareholder Representative pursuant to the Agreement and Plan of Merger. The share amounts do not include 734,511 shares held by Evans Renewable Holdings II, LLC and 10,464 shares held by Pine Beach Holdings, LLC. Mr. Fleischauer is the co-manager of both such entities and has investment power and voting control over such shares. Mr. Fleischauer disclaims beneficial ownership of such shares, except to the extent of his pecuniary interest in them.
- (10) Steven Hummel is the former Vice President of Engineering of PV Powered, Inc. He remains an employee of PV Powered,

Inc., but is not
an executive
officer of either
PV Powered,
Inc. or
Advanced
Energy.

PLAN OF DISTRIBUTION

The shares of our common stock covered by this prospectus may be offered and sold from time to time by the selling stockholders. The selling stockholders may offer and sell the shares of our common stock covered by this prospectus from time to time on any stock exchange on which the shares are listed, in the over-the-counter market, in privately negotiated transactions or otherwise, or any combination of the foregoing sales methods, at fixed prices that may be changed, at market prices prevailing at the time of sale, at prices related to prevailing market prices or at prices otherwise negotiated. The selling stockholders will act independently of us in making decisions with respect to the timing, manner and size of each sale, and we cannot predict whether the selling stockholders will sell all or any portion of the shares offered hereby. We will not receive any proceeds from the sale of shares of common stock by the selling stockholders.

The selling stockholders may offer and sell the shares of common stock covered by this prospectus by one or more of the following methods, including, without limitation:

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

purchases by a broker or dealer as principal and resale by the broker or dealer for its own account pursuant to this prospectus;

ordinary brokerage transactions and transactions in which the broker solicits purchases;

at the market transactions to or through market makers or into an existing market for our common stock;

In privately negotiated transactions;

short sales;

In options, swaps or other derivative transactions that may or may not be listed on an exchange;

one or more underwritten offerings on a firm commitment or best efforts basis; or

any combination of the above.

A selling stockholder may engage brokers and dealers, and any brokers or dealers may arrange for other brokers or dealers to participate in effecting sales of the shares. These brokers or dealers may act as principals, or as agents of a selling stockholder. Broker-dealers may agree with a selling stockholder to sell a specified number of the shares of our common stock at a stipulated price per share. If a broker-dealer is unable to sell shares of our common stock acting as agent for a selling stockholder, it may purchase as principal any unsold shares of our common stock at the stipulated price. Broker-dealers who acquire shares of our common stock as principals may thereafter resell the shares of our common stock from time to time in transactions in any stock exchange on which the shares are then listed, at prices and on terms then prevailing at the time of sale, at prices related to the then-current market price or in negotiated transactions. Broker-dealers may use block transactions and sales to and through broker-dealers, including transactions of the nature described above.

To the extent required under the Securities Act, the aggregate amount of the shares of our common stock being offered by the selling stockholders and the terms of the offering, the names of any underwriters, brokers, dealers or agents and any applicable commission with respect to a particular offering will be set forth in any accompanying prospectus supplement. Any underwriters, dealers, brokers or agents participating in the distribution of the shares may receive compensation in the form of underwriting discounts, concessions, commissions or fees from the selling stockholder and/or purchasers of the selling stockholder's shares, for whom they may act, which compensation as to a particular broker-dealer might be in excess of customary commissions.

Any underwriters, brokers, dealers or agents that participate in the distribution of the shares of our common stock may be deemed to be underwriters within the meaning of the Securities Act, and any discounts, concessions, commissions or fees received by them and any profit on the resale of the shares of our common stock sold by them may be deemed to be underwriting discounts and commissions.

The selling stockholders may enter into hedging transactions with broker-dealers and the broker-dealers may engage in short sales of the common stock in the course of hedging the positions they assume with the selling stockholders, including, without limitation, in connection with distributions of the shares of common stock by those broker-dealers. The selling stockholders may enter into option or other transactions with broker-dealers that involve the delivery of the shares of our common stock offered hereby to the broker-dealers, who may then resell or otherwise transfer those securities.

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The selling stockholders and other persons participating in the sale or distribution of the shares of common stock will be subject to applicable provisions of the Exchange Act and the rules and regulations thereunder, including Regulation M. This regulation may limit the timing of purchases and sales of any of the shares of our common stock by the selling stockholders and any other person. The anti-manipulation rules under the Exchange Act may apply to sales of shares of our common stock in the market and to the activities of the selling stockholders and their affiliates. Furthermore, Regulation M may restrict the ability of any person engaged in the distribution of the common stock to engage in market-making activities with respect to the particular shares being distributed for a period of up to five business days before the distribution. These restrictions may affect the marketability of the common stock and the ability of any person or entity to engage in market-making activities with respect to the securities.

The selling stockholders may also sell the shares in accordance with Rule 144 under the Securities Act rather than pursuant to this prospectus, regardless of whether the shares are covered by this prospectus.

We will make copies of this prospectus available to each selling stockholder and any of its successors in interest for purposes of satisfying the prospectus delivery requirements of the Securities Act, if applicable.

In order to comply with the securities laws of some states, if applicable, the shares of our common stock offered by this prospectus must be sold in such jurisdictions only through registered or licensed brokers or dealers. In addition, in some states the shares of our common stock may not be sold unless they have been registered or qualified for sale in the applicable state or an exemption from the registration or qualification requirement is available and is complied with.

To the extent required, this prospectus may be amended or supplemented from time to time to describe a specific plan of distribution.

CERTAIN LEGAL MATTERS

Certain legal matters, including the validity of the common stock offered pursuant to this prospectus, have been passed upon for us by Thomas O. McGimpsey, Esq.

EXPERTS

The consolidated financial statements and management's assessment of the effectiveness of internal control over financial reporting incorporated by reference in this prospectus and elsewhere in the registration statement have been incorporated by reference in reliance upon the reports of Grant Thornton LLP, independent registered public accountants, upon authority of said firm as experts in accounting and auditing.

**DISCLOSURE OF COMMISSION POSITION ON INDEMNIFICATION FOR SECURITIES ACT
LIABILITIES**

As permitted by the Delaware General Corporation Law, or DGCL, our Restated Certificate of Incorporation, as amended, or the Certificate, provides that no director shall be personally liable to us or any stockholder for monetary damages for breach of fiduciary duty as a director, except for liability: (i) for any breach of the duty of loyalty to our company or our stockholders; (ii) for acts or omissions not in good faith or involving intentional misconduct or a knowing violation of the law; (iii) under Section 174 of the DGCL; or (iv) for any transaction from which the director derived an improper personal benefit. While the Certificate provides protection from awards for monetary damages for breaches of fiduciary duty, it does not eliminate the director's duty of care. Accordingly, the Certificate will not affect the availability of equitable remedies, such as an injunction, based on a director's breach of the duty of care. The provisions of the Certificate described above apply to our officers only if they are directors, and are acting in their capacity as directors, of Advanced Energy, and do not apply to officers of who are not also directors.

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In addition, our Bylaws, as amended, provide that we shall indemnify our Executive Officers (as defined in Rule 3b-7 promulgated under the Exchange Act) and directors, and any employee who serves as an Executive Officer or director of any corporation at our request, to the fullest extent permitted under and in accordance with the DGCL; provided, however, that we may modify the extent of such indemnification by individual contracts with our Executive Officers and directors; and, provided further, that we are not required to indemnify any Executive Officer or director in connection with any proceeding (or part thereof) initiated by such person unless: (i) such indemnification is expressly required to be made by law; (ii) the proceeding was authorized by our board of directors; (iii) we provide such indemnification in our sole discretion, pursuant to the powers vested in Advanced Energy under the DGCL; or (iv) such indemnification is required to be made under Article XI, Section 43, Subsection (d) of our Bylaws. Under the DGCL, directors and officers as well as employees and individuals may be indemnified against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement in connection with specified actions, suits or proceedings, whether civil, criminal, administrative or investigative (other than an action by or in the right of the corporation as a derivative action), if they acted in good faith and in a manner they reasonably believed to be in or not opposed to the best interests of the corporation, and with respect to any criminal action or proceeding, had no reasonable cause to believe their conduct was unlawful. Our Bylaws also expressly provide that the indemnification rights provided by the Bylaws shall not be exclusive of any other rights of indemnification provided under any statute, the Certificate, any agreement, vote of stockholders or disinterested directors or otherwise. Article XI, Section 43, Subsection (e) of the Bylaws gives the company the express authorization to enter into individual contracts with its directors, officers, employees or agents for indemnification and advances to the fullest extent not prohibited by the DGCL.

We entered into Director Indemnification Agreements with the members of our board of directors other than those also serving as an executive officer. Each Director Indemnification Agreement provides that, to the fullest extent permitted by law and subject to exceptions specified in the Director Indemnification Agreement, we shall hold harmless and indemnify the director, and advance expenses incurred by the director, including reasonable attorney fees and court costs, in connection with any proceeding covered by the Director Indemnification Agreement. Our obligations under each Director Indemnification Agreement shall continue following the time that the director ceases to be a director of Advanced Energy, so long as the director is subject to any proceeding covered by the Director Indemnification Agreement.

The rights of indemnification provided by the Director Indemnification Agreement are not exclusive and specifically supplement the rights to indemnification provided to the directors in our Certificate of Incorporation and By-laws and applicable law. To the extent that we maintain one or more insurance policies providing liability insurance for our directors, officers, employees, agents or fiduciaries, the directors shall be covered by such policy or policies in accordance with the terms thereof. In the event we make any payment under a Director Indemnification Agreement, we shall be subrogated to the extent of such payment to all of the rights of recovery of the director.

We maintain a policy of directors' and officers' liability insurance that insures our directors and officers against the costs of defense, settlement or payment of a judgment under certain circumstances.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to our directors, officers and controlling persons pursuant to the foregoing provisions, or otherwise, we have been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable.

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997,966 Shares
Advanced Energy Industries, Inc.
Common Stock