



2015 Annual Report





AEIS 2015 Annual Report Letter to Stockholders

Dear Fellow Stockholders:

2015 was a year of many accomplishments. Semiconductor revenues reached record highs and we achieved double digit growth in revenues, operating income and earnings per share from continuing operations. We announced a \$150 million stock repurchase plan as part of our capital deployment strategy and completed a \$50 million accelerated share repurchase as the initial phase. With the wind down of the solar inverter manufacturing business now complete, we increase our focus on addressing the growing number of critical applications for our precision power products and technologies. Our ability to consistently generate cash is enabling us to pursue these opportunities while simultaneously repurchasing shares, returning value to our stockholders.

Our strong semiconductor results this year again exemplify our leading market position as we continue to win designs and enable advanced applications for our customers. Our ongoing commitment to investing in the development of products and technologies and expanding our core competencies is resulting in notable successes. Specifically, these include radio frequency (RF) technology products and accessories targeting advanced semiconductor Plasma Processes used in logic and memory applications such as 3D NAND and DRAM, FinFET and advanced 3D packaging. As next-generation semiconductor devices grow more complex and require more deposition and etch processes, our advanced RF power solutions are in increasingly high demand. Our exposure to these areas should allow us to outpace the broader wafer fab equipment market.

While the semiconductor market remains our primary driver, one of our strategic goals is to expand our precision power products to address a broader range of industrial applications, both organically and inorganically. During the year, we took further steps to integrate our three recent acquisitions by leveraging our manufacturing and global distribution channels and further penetrating existing and new markets worldwide. We extended our geographic presence by taking our hard coatings business beyond the Europe, Middle East and Africa (EMEA) region to India, China and North America. We also introduced our thermal products to global channel partners in the US, India and China. By forming important new partnerships with large industrial automation companies such as Rockwell Automation and Siemens, we are broadening our reach into various industrial markets. We continued to diversify our addressable markets, accessing industries such as automotive, consumer electronics and defense for hard coating applications. In the high voltage power market, we made significant headway across applications such as defense, analytical equipment, mass spectrometry, industrial x-ray and electron beam. As we establish footholds in these different applications and geographies, we plan to pursue complementary product line acquisitions and continue our expansion into adjacent and new markets.

Precision Power service continues to be a strategic part of our business. With the high semiconductor utilization rates seen in 2015 and the increasing focus on reducing the cost of wafer processing, customers are realizing the value of our high quality service programs to lower the total cost of ownership of their capital equipment. In conjunction with upgrades and retrofits, our service programs

as well as our enhanced sales efforts are driving share gains across Asia and North America, which should result in steady, sustainable growth.

In 2015, we unveiled our capital allocation strategy. This program is centered on driving shareholder value by investing in long-term growth opportunities and making share repurchases. We intend to use 70% of our future free cash flow to make organic investments and acquisitions. By continuing to invest in R&D and drive technology advances, we are building on our leading position in the core markets we serve and should benefit from the anticipated growth in semiconductors driven by the migration to next generation devices. With the addition of acquired technologies and products, we are growing our presence in various industrial markets – increasing our total available market. With the remaining 30% of our future free cash flow, we plan to make share repurchases.

Overall, we are executing on our strategic plan to accelerate revenue growth, increase earnings per share and effectively utilize our cash. With our focus entirely on precision power, we plan to significantly broaden our product line, enter and expand into new geographies and address a growing list of precision power applications, both organically and inorganically. Together with our consistently strong cash generation, we remain committed to effectively deploying our cash and returning value to stockholders. Our three year aspirational goals are to achieve revenues of \$600 million to \$700 million, grow Non-GAAP EPS to \$3.00 to \$3.50 and generate cumulative cash flow of \$250 million to \$300 million. We are excited about the many opportunities that lay ahead as we further distinguish ourselves from the competition.

We look forward to reporting our progress and want to thank all of our stockholders for their continued support of Advanced Energy.



Yuval Wasserman
President & Chief Executive Officer
Advanced Energy Industries, Inc.

Forward-Looking Statements

This letter to stockholders contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934, including, among others, statements regarding our plans and goals, our performance and the performance of our competitors for periods that are not historical, ongoing investment, acquisitions and expansion, growth of our business, growth in our market share, growth in the markets we serve, share repurchases and cash deployment that are not historical and similar statements. Forward-looking statements are subject to known and unknown risks and uncertainties that could cause actual results to differ materially from those expressed or implied by such statements. Such risks and uncertainties include, but are not limited to: (a) the effects of global macroeconomic conditions upon demand for our products; (b) the volatility and cyclicality of the industries the company serves, particularly the semiconductor industry; (c) delays in capital spending by end-users in our served markets; (d) the accuracy of the company's estimates related to fulfilling Solar inverter product warranty and post-warranty obligations; (e) the company's ability to realize on its plan to avoid additional costs after the Solar inverter wind-down; (f) the accuracy of the company's estimates and assumptions on which its financial statement projections are based; (g) the impact of price changes, which may result from a variety of factors; (h) the timing of orders received from customers; (i) the company's ability to realize benefits from cost improvement efforts including avoided costs, restructuring plans and inorganic growth; (j) the company's

ability to obtain in a timely manner the materials necessary to manufacture its products; and (k) unanticipated changes to management's estimates, reserves or allowances. These and other risks are described in Advanced Energy's Form 10-K, Forms 10-Q and other reports and statements filed with the Securities and Exchange Commission (the "SEC"). These reports and statements are available on the SEC's website at www.sec.gov. Copies may also be obtained from Advanced Energy's investor relations page at <http://ir.advanced-energy.com> or by contacting Advanced Energy's investor relations at 970-407-6555. Forward-looking statements are made and based on information available to the company on the date of this letter to stockholders. Aspirational goals and targets discussed on the conference call or in the presentation materials should not be interpreted in any respect as guidance. The company assumes no obligation to update the information in this letter to stockholders.

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**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549**

FORM 10-K

**ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934.
For the fiscal year ended December 31, 2015.**

or

**TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934.
For the transition period from ____ to ____.**

Commission file number: 000-26966

ADVANCED ENERGY INDUSTRIES, INC.

(Exact name of registrant as specified in its charter)

Delaware

84-0846841

(State or other jurisdiction of incorporation or organization)

(I.R.S. Employer Identification No.)

1625 Sharp Point Drive, Fort Collins, CO

80525

(Address of principal executive offices)

(Zip Code)

Registrant's telephone number, including area code: (970) 221-4670

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

Title of each class	Name of each exchange on which registered
Common Stock, \$0.001 par value	NASDAQ Global Select Market

Securities registered pursuant to section 12(g) of the Act: None

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

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act: Yes No

Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

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

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

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer

Accelerated filer

Non-accelerated filer

Smaller reporting company

(Do not check if a smaller reporting company)

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).

Yes No

The aggregate market value of voting and non-voting common stock held by non-affiliates of the registrant was \$1,127,440,745 as of June 30, 2015, based upon the price at which such common stock was last sold on such date. For purposes of this disclosure, shares of common stock held by persons who hold more than 5% of the outstanding common stock and common stock held by executive officers and directors of the registrant have been excluded because such persons are deemed to be "affiliates" as that term is defined under the rules and regulations promulgated under the Securities Act of 1933. This determination is not necessarily conclusive for other purposes.

39,850,932

(Number of shares of Common Stock outstanding as of February 23, 2016)

DOCUMENTS INCORPORATED BY REFERENCE

Part III of this Annual Report on Form 10-K incorporates information by reference from the registrant's definitive proxy statement for its 2015 Annual Meeting of Stockholders, scheduled to be held on May 5, 2016. Except as expressly incorporated by reference, the registrant's definitive proxy statement shall not be deemed to be a part of this Annual Report on Form 10-K.

ADVANCED ENERGY INDUSTRIES, INC.
FORM 10-K
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PART I

Unless the context otherwise requires, as used in this Form 10-K, references to "Advanced Energy", "the Company", "we", "us" or "our" refer to Advanced Energy Industries, Inc. and its consolidated subsidiaries.

ITEM 1. BUSINESS

Overview

Advanced Energy provides highly-engineered, mission-critical, precision power conversion, measurement and control solutions to our global customers. We do this by designing, manufacturing, selling and supporting our power conversion products and solutions that transform power into various usable forms in various applications ranging from manufacturing and industrial processes to instrumentation and test and measurement. The market for power conversion solutions is large with hundreds of suppliers and subsystem/component manufacturers. We focus on highly-engineered products that solve our customers' toughest mission-critical applications.

Our process power products enable manufacturing processes that use thin films for various products, such as semiconductor devices, flat panel displays, thin film renewables, hard and industrial coatings and architectural glass. We also supply power control modules for controlling thermal processes, and thermal instrumentation products for advanced temperature measurement, both of which provide solutions for thin film semiconductor, thin film industrial, and heavy industry. Our remote plasma sources are used in the thin films processing industries and in gas abatement applications. Our high voltage products offer unique power solutions for semiconductor, analytical instrumentation, industrial x-ray, and medical imaging applications. Our network of global service support centers provides revenue as we offer repair services, conversions, upgrades, and refurbishments to companies using our products.

On January 27, 2014, we acquired the intellectual property related to AEG Power Solutions' Power Control Modules ("PCM"). PCM is comprised of the Thyro-Family of products and accessories and serves numerous power control applications in different industries ranging from materials' thermal processing through chemical processing, glass manufacturing and numerous other general industrial power applications. This acquisition broadens our product offerings and was added to our Precision Power portfolio.

On April 12, 2014, we acquired all outstanding common stock of HiTek Power Group ("HiTek"), a privately-held provider of high voltage power solutions. Based in the United Kingdom, HiTek offers a comprehensive portfolio of high voltage and custom built power conversion products, ranging from 100V to 500kV, designed to meet the demanding requirements of original equipment manufacturers ("OEM") worldwide. These products target applications including semiconductor wafer processing and metrology, scientific instrumentation, mass spectrometry, industrial printing, and analytical x-ray systems for industrial and analytical applications. HiTek's unique product architecture, encapsulation technology and control algorithms, combined with deep knowledge of its customer-specific applications, have made it a leading provider of critical, high-end, high voltage power solutions. We acquired HiTek to expand our product offerings in our Precision Power portfolio.

On August 4, 2014, we acquired all outstanding common stock of UltraVolt, Inc. ("UltraVolt"), a privately-held provider of high voltage power solutions. Based in Ronkonkoma, New York, UltraVolt offers a comprehensive portfolio of high voltage power supplies and modules ranging from benchtop and rack mount systems to microsize printed circuit board mount modules. Its standard DC-to-DC product line consists of over 1,500 models, which can be combined with accessories and options to create thousands of product configurations. Serving over 100 markets, UltraVolt's fixed-frequency, high voltage topology provides wide input and output operating ranges while retaining excellent stability and efficiencies. We acquired UltraVolt to expand our high voltage product offerings in our Precision Power portfolio. *Note 2. Business Acquisitions* in ITEM 8 "Financial Statements and Supplementary Data," describes the acquisitions of PCM, HiTek, and UltraVolt.

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 970-407-4670.

Products and Services

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.

In 2014, we changed our organizational structure from two business units (formerly known as the Thin Films Business Unit and the Solar Energy Business Unit) to a single functional organization with various product lines organized as reportable segments, Precision Power and Inverters. However, as of December 31, 2015, we have discontinued our Inverter production,

engineering, and sales product line representing a strategic shift in our business. As such, all Inverter revenues, costs, assets and liabilities are reported in Discontinued Operations for all periods presented herein and we currently report as a single unit.

We principally serve OEMs and end customers in the semiconductor, flat panel display, high voltage, solar panel, and other industrial capital equipment markets. Our products are used in diverse markets, applications, and processes including the manufacture of capital equipment for semiconductor devices, thin film applications for thin film renewables and architectural glass, and for other thin film applications including flat panel displays, data storage, and industrial coatings. These markets can be cyclical in nature. Therefore, demand for our products and our financial results can change as demand for manufacturing equipment and repair and maintenance services change in response to consumer demand. Other factors, such as global economic and market conditions and technological advances in fabrication processes and renewable applications can also have an impact on our financial results, both positively and negatively.

Our thin film deposition power conversion systems include direct current ("DC"), pulsed DC low frequency, high voltage, and radio frequency ("RF") power supplies, matching networks, remote plasma sources for reactive gas applications and RF instrumentation. These 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, industrial hard coating and ophthalmic optical coating equipment makers, and architectural glass manufacturers.

Our power control modules and thermal instrumentation products are used in the semiconductor industry, including adjacent thin film applications for solar PV and light emitting diode ("LED") industries, and heavy industries, for thermal control and temperature measurement solutions for applications in which time-temperature cycles affect material properties, productivity, and yield. These products are used in rapid thermal processing, chemical vapor deposition, crystal growing, and other semiconductor and solar applications requiring non-contact temperature measurement. They are also used in chemical processing, glass manufacturing and numerous other general industrial power applications.

Our global support services group offers in-warranty and out-of-warranty repair services in the regions in which we operate, providing us with preventive maintenance opportunities. Our customers continue to pursue low cost of ownership of their capital equipment and are increasingly sensitive to the significant costs of system downtime. They expect that suppliers offer comprehensive local repair service and customer support. To meet these market requirements, we maintain a worldwide support organization comprising of both direct and indirect activities through partnership with local distributors primarily in the United States ("U.S."), the People's Republic of China ("PRC"), Japan, South Korea, Taiwan, Germany, and Great Britain.

Effective with the conclusion of our inverter wind-down on December 31, 2015, we consider all inverter new product warranties historically sold to be discontinued operations. However, extended warranties historically sold and reflected as "Deferred Revenue" on our Consolidated Balance Sheets, represent future revenue and service costs to be incurred by our global services group and are reflected as continuing operations for historical periods and future periods. Please See *Note 3. Discontinued Operations* in PART II ITEM 8 "Financial Statements and Supplementary Data."

Markets

Our products compete in markets for high tech manufacturing capital equipment and renewable energy production. Our markets are not generally subject to seasonality; however, these markets are 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, government incentives and subsidies, and access to affordable capital. For more information related to the markets in which we compete and the current environment in those markets, please see *Business Environment and Trends* in Item 7. Management's Discussion and Analysis.

SEMICONDUCTOR CAPITAL EQUIPMENT

Customers in the semiconductor capital equipment market incorporate our products into equipment that make integrated circuits. Our power conversion systems provide the energy to enable thin film processes, such as deposition and etch, and high voltage applications such as ion implant. Our thermal instrumentation products measure the temperature of the processed substrate or the process chamber. Our remote plasma sources deliver ionized gases for reactive chemical processes used in cleaning, surface treatment, and gas abatement. Precise control over the energy delivered to plasma-based processes enables the production of integrated circuits with reduced feature sizes and increased speed and performance.

SOLAR PANEL CAPITAL EQUIPMENT

We sell our products to OEMs and manufacturers of solar cells who use our products to produce thin films using silicon substrates, as well as glass or metal substrates. The majority of solar cell manufacturing currently uses a silicon wafer as the substrate and employs chemical vapor deposition ("CVD") thin film processing. The solar cell industry has developed processes for manufacturing solar cells on non-silicon substrates, such as glass and metal by using thin film processes that employ CVD tools. Our RF and DC power supply products are designed for use in these CVD and physical vapor deposition ("PVD") tools. Our products are used in leading thin film solar cell technologies, including amorphous and microcrystalline silicon, copper, indium, gallium, selenide, and cadmium telluride.

FLAT PANEL DISPLAY CAPITAL EQUIPMENT

Manufacturers of flat panel displays use thin film processes similar to those employed in manufacturing semiconductor integrated circuits. Flat panel display technology produces bright, sharp, large, color-rich images on flat screens for products ranging from hand-held devices to laptop and desktop computer monitors and flat TVs. This technology is used in manufacturing liquid crystal display, LED backlit, and 3-dimensional ("3D") television screens. The transition to larger panel sizes and higher display resolution is driving the need for tighter process controls to reduce manufacturing costs and defects. Increased focus on user experience and interface drives the use for new materials and device architecture such as organic light-emitting diode ("OLED") and active-matrix organic light-emitting diode ("AMOLED") and new technologies for touch screen. The emerging migration to flexible display drives the development of new materials and thin film technologies for encapsulation.

DATA STORAGE CAPITAL EQUIPMENT

Data storage equipment manufacturers use our products in their capital equipment which allows them to produce a variety of products, including optical disks, such as CDs, DVDs and Blu-ray, and magnetic storage, such as computer hard discs, including both magnetic media and thin film heads. These products use a PVD process to produce optical and magnetic thin film layers, as well as a protective-wear layer. In this market, the trend towards higher recording densities requires thinner and more precise films. The use of equipment incorporating optical and magnetic media to store digital data expands with the growth of the laptop, desktop and network server computer markets, and consumer electronics including audio, video, gaming, cell phone, and entertainment markets.

ARCHITECTURAL GLASS CAPITAL EQUIPMENT

Low Emissivity or Low-E architectural glass manufacturers use our power supplies in their production equipment. This glass is used in commercial and residential buildings to reduce energy absorption and loss through the use of thin films coated directly on the glass which reduces the energy absorbed in the building. The thin film deposition process employs PVD tools which use our DC and mid-frequency power products. This market is driven by end market demand for glass related to the residential and commercial construction industry.

INDUSTRIAL PRODUCTS CAPITAL EQUIPMENT

The thin film deposition processes are also used in the manufacturing process of products for a variety of industrial and consumer markets. Our process power solutions allow thin films to be applied to products in plasma-based processes to strengthen and harden surfaces on such diverse products as machine tools, automotive parts, and various other end products. The advanced thin film production processes allow precise control of various optical and physical properties, including color, transparency, and electrical and thermal conductivity. The improved adhesion and specular surfaces resulting from plasma-based processing make it the preferred method of applying thin films. The need for improved films properties for both hard coating and optical coating requires a precision power conversion technology which we achieved through the acquisition of Solvix products and technology.

Customers

Our products are sold worldwide to approximately 316 OEMs and integrators and directly to more than 1,771 end users. Our ten largest customers accounted for approximately 61.2% of our sales in 2015, 59.7% of our sales in 2014, and 61.6% of our sales in 2013. We expect that the sale of products to our largest customers will continue to account for a significant percentage of our sales for the foreseeable future.

Applied Materials Inc., our largest customer, accounted for 29.8% of our sales in 2015 and 2014, and 32.1% of our sales in 2013. Lam Research accounted for 20.3% of our sales in 2015, 19.9% of our sales in 2014, and 16.8% of our sales in 2013. No other customer accounted for greater than 10% of our sales in 2015, 2014, or 2013. The loss of Applied Materials, Inc. or Lam Research as a customer could have a material adverse effect on our results of operations.

Backlog

Our backlog was approximately \$43.7 million at December 31, 2015, a 31.5% decrease from \$63.8 million at December 31, 2014. This decrease resulted primarily from the pause in investment in the semiconductor capital equipment markets in the fourth quarter of 2015. We expect overall growth in backlog as the semiconductor market rebounds in 2016. For more information related to our expectations for the markets we serve, please see *Business Environment and Trends* in Item 7. Management's Discussion and Analysis. Backlog orders are firm orders scheduled to be filled and shipped in the next 12 months and include our just-in-time supply agreements with major OEM's.

Backlog orders are not necessarily an indicator of future sales levels because of variations in lead times and customer production demand pull systems. Customers may delay delivery of products or cancel orders prior to shipment, subject to possible cancellation penalties. Delays in delivery schedules and/or customer changes to backlog orders during any particular period could cause a decrease in sales and have a material adverse effect on our business and results of operations.

Marketing, Sales and Distribution

We sell our products through direct and indirect sales channels in North America, Europe, and Asia. Our sales operations are primarily located in the United States, the PRC, the United Kingdom, Germany, Japan, South Korea, India, Singapore, and Taiwan. In addition to a direct sales force, we have independent sales representatives and distributors that support our selling efforts. We maintain customer service offices at many of the locations listed above, as well as other sites near our customers' locations. We believe that customer service and technical support are important competitive factors and are essential to building and maintaining close, long-term relationships with our customers.

The following table presents our net sales by geographic region for the years ended December 31, 2015, 2014, and 2013. Sales are attributed to individual countries based on customer location.

Sales to external customers:	Years ended December 31,		
	2015	2014	2013
	(In thousands)		
United States	\$ 268,257	\$ 230,843	\$ 169,362
Canada	195	347	93
North America	268,452	231,190	169,455
People's Republic of China	12,687	12,903	27,420
Other Asian countries	61,839	56,938	62,706
Asia	74,526	69,841	90,126
Germany	46,719	43,343	31,651
United Kingdom	25,100	22,670	5,752
Other European Countries	14	289	2,397
Europe	71,833	66,302	39,800
Total sales	\$ 414,811	\$ 367,333	\$ 299,381

Total sales to all foreign countries totaled \$146.6 million, \$136.5 million, and \$130.0 million in the years ended December 31, 2015, 2014, and 2013, respectively.

See "Risk Factors" in Item 1A for a discussion of certain risks related to our foreign operations.

Manufacturing

The manufacturing of our Precision Power related products is performed in Shenzhen, PRC; Ronkonkoma, New York; and Littlehampton, United Kingdom. Manufacturing in these three locations, primarily the PRC, exposes us to risks, such as exchange controls and currency restrictions, changes in local economic conditions, changes in PRC laws and regulations, government actions, and unsettled political conditions. The thermal instrumentation product line is manufactured in Vancouver, Washington.

Manufacturing requires raw materials, including a wide variety of mechanical and electrical components, to be manufactured to our specifications. We use numerous companies, including contract manufacturers, to supply parts for the

manufacture and support of our products. Although we make reasonable efforts to assure that parts are available from multiple qualified suppliers.

Some key parts may be obtained from a sole supplier or a limited group of suppliers. We seek to reduce costs and to lower the risks of production and service interruptions, as well as shortages of key parts by:

- selecting and qualifying alternate suppliers for key parts using rigorous technical and commercial evaluation of suppliers' products and business processes including testing their components' performance, quality, and reliability on our power conversion product at our customers' and their customer's processes. The qualification process for Precision Power, particularly as it pertains to semiconductor customers, follows semiconductor industry standard practices, such as "copy exact";
- monitoring the financial condition of key suppliers;
- maintaining appropriate inventories of key parts, including making last time purchases of key parts when notified by suppliers that they are ending the supply of those parts;
- qualifying new parts on a timely basis and in geographies that reduce costs without degradation in quality;
- locating certain manufacturing operations in areas that are closer to suppliers and customers; and
- competitively sourcing parts through electronic bidding tools to ensure the lowest total cost is achieved for the parts needed in our products.

Intellectual Property

We seek patent protection for inventions governing new products or technologies as part of our ongoing research and development. We currently hold 104 United States patents and 62 foreign-issued patents, and have 116 patent applications pending in the United States, Europe and Asia. A substantial majority of our patents relate to our Precision Power business. Generally, our efforts to obtain international patents have been concentrated in the industrialized countries within Europe and Asia because there are other manufacturers and developers of power conversion and control systems in those countries, as well as customers for those systems for which our intellectual property applies.

Litigation may, from time to time, be necessary to enforce patents issued to us, to protect trade secrets or know-how owned by us, to defend us against claimed infringement of the rights of others, or to determine the scope and validity of the proprietary rights of others. See "Risk Factors — *We are highly dependent on our intellectual property*" in Item 1A.

Competition

The markets we serve are highly competitive and characterized by rapid technological development and changing customer requirements. No single company dominates any of our markets. Significant competitive factors in our markets include product performance, compatibility with adjacent products, price, quality, reliability, and level of customer service and support.

We have seen an increase in global competition in the markets in which we compete, especially from Asian and European-based component suppliers. We encounter substantial competition from foreign and domestic companies for each of our product lines. Some of our competitors have greater financial and other resources than we do. In some cases, competitors are smaller than we are, but are well established in specific product niches. MKS Instruments, Inc. ("MKSI"), Comdel, Inc., Daihen Corporation, Kyosan Electric Mfg. Co., Ltd., Hüttinger Elektronik GmbH, Comet Holding AG, New Plasma Products (NPP), Entech, Plasmart (now a division of MKSI), and ADTech compete with our power conversion products for thin film processing. Spellman High Voltage, Crane, and Matsusada Precision offer products that compete with our high voltage products. Lumasense Technologies, CI Systems, BASF, and Laytec GmbH offer products that compete with our thermal instrumentation products. Eurotherm by Schneider Electric, Control Concepts Inc., CD Automation, and Spang Power Electronics offer products that compete with our power control modules.

Additionally, a focus on local content is causing new competitors to emerge around the world, with strong support from local governments, industry leaders, and investors.

Our ability to continue to compete successfully in these markets depends on our ability to make timely introductions of product enhancements and new products, to localize these development and production activities in key world regions, and to produce quality products. We expect our competitors will continue to improve the design and performance of their products, and introduce new products with competitive performance characteristics. We believe that we currently compete effectively with respect to these factors, although we cannot assure that we will be able to compete effectively in the future.

Research and Development

The market for our precision power conversion, thermal, and high voltage products is characterized by ongoing technological changes. We believe that continued and timely development of new highly differentiated products and enhancements to existing products to support end user and OEM requirements is necessary for us to maintain a competitive position in the markets we serve. Accordingly, we continue to devote a significant portion of our personnel and financial resources to research and development projects and seek to maintain close relationships with our key customers and other industry leaders in order to remain responsive to their product requirements now and in the future.

Research and development expenses were \$39.6 million in 2015, \$36.9 million in 2014, and \$35.4 million in 2013, representing 9.5% of our sales in 2015, 10.0% of our sales in 2014, and 11.8% of our sales in 2013.

Employees

As of December 31, 2015, we had a total of 1,382 employees. Our employees are not represented by unions, except for statutory organization rights applicable to our employees in the PRC, and we have never experienced an involuntary work stoppage. We believe that our continued success depends, in part, on our ability to attract and retain qualified personnel. We consider our relations with our employees to be good.

Effect of Environmental Laws

We are subject to federal, state, and local environmental laws and regulations, as well as the environmental laws and regulations of the foreign federal and local jurisdictions in which we have manufacturing facilities. We believe we are in material compliance with all such laws and regulations.

Compliance with federal, state, and local laws and regulations has not had, and is not expected to have, an adverse effect on our capital expenditures, competitive position, financial condition, or results of operations.

Website Access

Our website address is *www.advancedenergy.com*. We make available, free of charge on our website, our Annual Report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and all amendments to these reports as soon as reasonably practicable after filing such reports with, or furnishing them to, the Securities and Exchange Commission ("SEC"). Such reports are also available at *www.sec.gov*. Information contained on our website is not incorporated by reference in, or otherwise part of, this Annual Report on Form 10-K nor any of our other filings with the SEC.

Special Note Regarding Forward-Looking Statements

This Annual Report on Form 10-K includes or incorporates by reference "forward-looking statements" within the meanings of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. All statements contained or incorporated by reference in this Annual Report on Form 10-K, other than statements of historical fact, are "forward-looking statements." For example, statements relating to our beliefs, expectations, plans, projections, forecasts, goals, and estimates are forward-looking statements, as are statements that specified actions, conditions, or circumstances will continue or change. Forward-looking statements involve risks and uncertainties. In some cases, forward-looking statements can be identified by the inclusion of words such as "believe," "expect," "plan," "anticipate," "estimate," "may," "might," "could," "should," "will," "continue," "intend," and similar words.

Some of the forward-looking statements in this Annual Report on Form 10-K are, or reflect, our expectations or projections relating to:

- our future revenues;
- our future sales, including backlog orders;
- unanticipated costs in fulfilling our warranty obligations for solar inverters;
- our future gross profit;
- our competition;
- market acceptance of, and demand for, 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;
- our share repurchase program;
- our tax assets and liabilities;
- our other commitments and contingent liabilities;
- adequacy of our reserve for excess and obsolete inventory;
- adequacy of our warranty reserves;
- restructuring activities and expenses;
- the integration of our acquisitions;
- general global economic conditions; and
- industry trends.

Our actual results could differ materially from those projected or assumed in our forward-looking statements because forward-looking statements by their nature are subject to risks and uncertainties. Factors that could contribute to these differences or prove our forward-looking statements, by hindsight, to be overly optimistic or unachievable include the factors described in “Risk Factors” in Item 1A. Other factors might also contribute to the differences between our forward-looking statements and our actual results. We assume no obligation to update any forward-looking statement or the reasons why our actual results might differ.

Executive Officers of the Registrant

Our executive officers, their positions and their ages as of December 31, 2015 are as follows:

Yuval Wasserman, 61, is our President & Chief Executive Officer and was appointed to the Board of Directors on October 1, 2014. Mr. Wasserman joined us in August 2007 as Senior Vice President, Sales, Marketing and Service. In October 2007, he was promoted to Executive Vice President, Sales, Marketing and Service. In April 2009, he was promoted to Executive Vice President and Chief Operating Officer of the Company and then in August 2011 he was promoted to President of the Thin Films Business Unit. Beginning in May 2002, Mr. Wasserman served as the President, and later as Chief Executive Officer, of Tevet Process Control Technologies, Inc., a semiconductor metrology company, until July 2007. Prior to that, he held senior executive and general management positions at Boxer Cross (a metrology company acquired by Applied Materials, Inc.), Fusion Systems (a plasma strip company that is a division of Axcelis Technologies, Inc.), and AG Associates (a semiconductor capital equipment company focused on rapid thermal processing). Mr. Wasserman started his career at National Semiconductor, Inc., where he held various process engineering and management positions. Mr. Wasserman joined the board of Synchroness, Inc., an outsourced engineering and product development company, in 2010. Mr. Wasserman is a National Association of Corporate Directors (NACD) Governance Fellow. Mr. Wasserman holds a BsC in chemical engineering from Ben Gurion University in Beer Sheva, Israel.

Thomas Liguori, 57, joined us in May 2015 as Executive Vice President and Chief Financial Officer. Prior to joining Advanced Energy, he served as Executive Vice President and Chief Financial Officer at Multi-Fineline Electronix, Inc. since 2008. Multi-Fineline Electronix, Inc. is one of the world’s largest producers of flexible printed circuits and flexible circuit assemblies. Prior to Multi-Fineline Electronix, Inc., Mr. Liguori served as Chief Financial Officer at Hypercom, Inc. from November 2005 to February 2008, where he designed and built the global finance and administration functions. From February 2005 to November 2005, Mr. Liguori served as Vice President, Finance and Chief Financial Officer at Iomega Corporation, a publicly traded provider of storage and network security solutions, and from April 2000 to February 2005, as Chief Financial Officer at Channell Commercial Corporation, a publicly traded designer and manufacturer of telecommunications equipment. Prior to that time, Mr. Liguori served as Chief Financial Officer of Dole Europe for Dole Food Company, serving as the top-ranking financial and IT executive in Dole’s operations in Europe, Africa and the Middle East, and as Vice President of Finance at Teledyne. Mr. Liguori began his career with Honeywell and served as a management consultant with Deloitte & Touche LLP. Mr. Liguori holds a Bachelor’s in Business Administration, Summa Cum Laude, from Boston University and completed a

Master's in Business Administration in Finance, Summa Cum Laude, from Arizona State University. He is a Certified Management Accountant and a Certified Financial Manager.

Thomas O. McGimpsey, 54, joined us in April 2009 as Vice President and General Counsel and was promoted to Executive Vice President of Corporate Development and General Counsel in August 2011 and held the corporate development position until mid-2015. From February 2008 to April 2009, Mr. McGimpsey held the position of Vice President of Operations at First Data Corporation. During 2007, Mr. McGimpsey was a consultant and legal advisor to various companies. From July 2000 to January 2007, Mr. McGimpsey held various positions with McDATA Corporation such as Executive Vice President of Business Development & Chief Legal Officer, Senior Vice President & General Counsel and Vice President of Corporate Development. From February 1998 to its sale in June 2000, Mr. McGimpsey held the position of Director and Senior Corporate Attorney at US WEST, Inc. From 1991 to 1998, Mr. McGimpsey was in private practice at national law firms. From 1984 to 1988, Mr. McGimpsey was a Senior Engineer for Software Technology, Inc. In August 2014 Mr. McGimpsey was appointed to the board of directors of CPP, Inc., a private company with international operations that provides wind engineering and air quality consulting services. In July 2015, Mr. McGimpsey was appointed as a Commissioner to the Colorado Commission on Higher Education. Mr. McGimpsey is a National Association of Corporate Directors (NACD) Governance Fellow. Mr. McGimpsey received his Masters of Business Administration from Colorado State University (with honors), his Juris Doctor degree from the University of Colorado and his Bachelor of Science degree in Computer Science (with a minor in electrical systems) from Embry-Riddle Aeronautical University.

ITEM 1A. RISK FACTORS

An investment in our common stock involves a number of very significant risks. You should carefully consider the risks described below and the other information in this Annual Report before deciding whether to purchase shares of our common stock.

Our business, financial condition, results of operations, and cash flow, could be materially adversely affected by any of these risks. The value of shares of our common stock could decline due to any of these risks, and you may lose all or part of your investment.

This Annual Report also contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those anticipated in these forward-looking statements as a result of certain factors, including the risks faced by us described below.

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.

The industries in which we compete are subject to volatile and unpredictable cycles.

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 declines in 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 fulfill customer orders, 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 or to accurately assess where we are positioned within a business cycle, our business, financial condition, or results of operations may be materially and adversely affected.

Cyclicality in the semiconductor equipment industry impacts 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 has experienced periodic and severe downturns and upturns. Business conditions, therefore, 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. During periods of increased demand, we may have difficulty obtaining sufficient components and subassemblies or increasing production quickly enough to meet our customers' requirements.

Market pressures and increased low-cost competition may reduce or eliminate our profitability.

Our customers continually exert pressure on us to reduce our prices and extend payment terms. 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 have recently seen pricing pressure from our largest customers due in part to low-cost competition and market consolidation. We believe some of our Asian competitors benefit from local governmental funding incentives and purchasing preferences from end-user customers in their respective countries. Moreover, in order to be successful in the current competitive environment, we are required to accelerate our investment in research & development to meet time-to-market, performance and technology adoption cycle needs of our customers simply in order to compete for design wins, and if successful, receive potential purchase orders. Given such up-front investments we have to make and the competitive nature of our markets, we may not be able to reduce our expenses in an amount sufficient to offset potential margin declines or loss of business, and may not be able to meet customer product timeline expectations. The decrease in cash flow could materially and adversely impact our financial condition.

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

Our ten largest customers accounted for 61.2% of our sales for the year ended December 31, 2015 and 59.7% of our sales for the year ended December 31, 2014. During the year ended December 31, 2015, sales to Applied Materials, Inc. and LAM Research were \$123.5 million and \$84.2 million or 29.8% and 20.3%, respectively. During the year ended December 31, 2014 sales to Applied Materials, Inc., and LAM Research were \$109.3 million and \$73.0 million, or 29.8% and 19.9%, respectively. Our sales to Applied Materials, Inc. and LAM Research include precision power products used in semiconductor processing and solar, flat panel display, and architectural glass applications. No other customer accounted for 10% or more of our sales during these periods.

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

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,

expensive, and may not be successful. If we are not successful in achieving design wins, or if we do achieve design wins 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.

Our legacy inverter products may suffer higher than anticipated damage or warranty claims.

Our legacy inverter products (of which we discontinued the manufacture and sale in December 2015 and which are reflected as Discontinued Operations in this filing) contain components that may contain errors or defects and were sold with original product warranties ranging from one to ten years with an option to purchase additional warranty coverage for up to 20 years. If any of our products are defective or fail because of their design, we might be required to repair, redesign or recall those products, pay damages (including liquidated damages) or warranty claims, and we could 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 additional expenses in the line "Loss from discontinued operations, net of tax" on our Consolidated Statement of Operations in future periods. We plan to continue supporting inverter customers with service maintenance and repair operations. This includes performing service to fulfill obligations under existing service maintenance contracts. There is no certainty that these can be performed profitably and could be adversely affected by higher than anticipated product failure rates, loss of critical service technician skills, an inability to obtain service parts, customer demands and disputes and cost of repair parts, among other factors. Please See *Note 3. Discontinued Operations* in ITEM 8 "Financial Statements and Supplementary Data."

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 or fail because of their design, we might be required to repair, redesign or recall those products, pay damages (including liquidated damages) or warranty claims, and we could 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. In 2014 and 2015, we have experienced increased warranty costs for our legacy inverter product lines.

We maintain significant amounts of cash in international locations.

Given the global nature of our business, we have both domestic and international concentrations of cash and investments. The value of our cash, cash equivalents, and marketable securities can be negatively affected by liquidity, credit deterioration, financial results, economic risk, political risk, sovereign risk or other factors. As a result, we could incur a significant impairment of our cash, cash equivalents, and marketable securities, which could materially adversely affect our financial condition and results of operations. For example, our recently announced capital deployment strategy as described in the *Liquidity* section of *Item 7. Management's Discussion and Analysis of Financial Conditions and Results of Operation* of this Form 10-K, may require us to access debt markets and there can be no assurance that access to debt at favorable terms will exist.

Changes in tax laws, tax rates, or mix of earnings in tax jurisdictions in which we do business, could impact our future tax liabilities and related corporate profitability

We are subject to income taxes in the U.S. (federal and state) and numerous foreign jurisdictions. Tax laws, regulations, and administrative practices in various jurisdictions may be subject to significant change due to economic, political, and other conditions, and significant judgment is required in evaluating and estimating our provision and accruals for these taxes. There are many transactions that occur during the ordinary course of business for which the ultimate tax determination is uncertain. Our effective tax rates could be adversely affected by earnings being lower than anticipated in jurisdictions where we have lower statutory rates and higher than anticipated in jurisdictions where we have higher statutory rates, losses incurred in jurisdictions for which we are not able to realize the related tax benefit, changes in foreign currency exchange rates, entry into new businesses and geographies and changes to our existing businesses, acquisitions (including integrations) and investments, changes in our

deferred tax assets and liabilities and their valuation, and changes in the relevant tax, accounting, and other laws, regulations, administrative practices, principles, and interpretations, including fundamental changes to the tax laws applicable to corporate multinationals. The U.S., many countries in the European Union, and a number of other countries are actively considering changes in this regard.

For example, on Oct. 5, 2015, the Organisation for Economic Co-operation and Development (OECD) issued the final report on all 15 Base Erosion and Profit Shifting “BEPS” Action Plans. According to the OECD, the current rules have created opportunities for Base Erosion and Profit Shifting, and suggest new rules whereby profits are taxed where economic activities take place and value is created. OECD comments include new or reinforced international standards as well as concrete measures to help countries tackle BEPS. Among the highlights of the OECD Final Reports are the new transfer pricing approach and reinforced international standards on tax treaties, the setting of minimum standards on harmful tax practices, treaty abuse, country-by-country reporting and dispute resolution, action items requiring national legislation particularly in hybrid mismatches and interest restriction, and analytical reports with recommendations concerning digital economy and multilateral instruments. If countries in which we operate adopt the OECD recommendations as outlined in the BEPS Action Plans, it is uncertain to what extent the changes could impact the company

Difficulties with our enterprise resource planning (“ERP”) system and other parts of our global information technology system could harm our business and results of operation.

Like many multinational corporations, we maintain a global information technology system, including software products licensed from third parties. Any system, network or Internet failures, misuse by system users, the hacking into or disruption caused by unauthorized access or loss of license rights could disrupt our ability to timely and accurately manufacture and ship products or to report our financial information in compliance with the timelines mandated by the SEC. Any such failure, misuse, hacking, disruptions or loss would likely cause a diversion of management's attention from the underlying business and could harm our operations. In addition, a significant failure of our global information technology system could adversely affect our ability to complete an evaluation of our internal controls and attestation activities pursuant to Section 404 of the Sarbanes-Oxley Act of 2002.

If our network security measures are breached and unauthorized access is obtained to a customer's data or our data or our information technology systems, we may incur significant legal and financial exposure and liabilities.

As part of our day-to-day business, we store our data and certain data about our customers in our global information technology system. While our system is designed with access security, unauthorized access to our data, including any regarding our customers, could expose us to a risk of loss of this information, loss of business, litigation and possible liability. These security measures may be breached by intentional misconduct by computer hackers, as a result of third-party action, employee error, malfeasance or otherwise. Additionally, third parties may attempt to fraudulently induce employees or customers into disclosing sensitive information such as user names, passwords or other information in order to gain access to our customers' data or our data, including our intellectual property and other confidential business information, or our information technology systems. Because the techniques used to obtain unauthorized access, or to sabotage systems, change frequently and generally are not recognized until launched against a target, we may be unable to anticipate these techniques or to implement adequate preventative measures. Any security breach could result in a loss of confidence by our customers, damage our reputation, disrupt our business, lead to legal liability and negatively impact our future sales.

We conduct manufacturing at only a few sites and our sites are not generally interchangeable.

Our power products for the semiconductor industry are manufactured in Shenzhen, PRC. Our high voltage products are manufactured in Ronkonkoma, New York and Littlehampton, United Kingdom. Our thermal instrumentation products that are used in the semiconductor industry are manufactured in Vancouver, Washington. Each facility is under operating lease and interruptions in operations could be caused by early termination of existing leases by landlords or failure by landlords to renew existing leases upon expiration, including the possibility that suitable operating locations may not be available in proximity to existing facilities which could result in labor or supply chain risks. For instance, our Shenzhen, PRC manufacturing facility currently has a lease which expires in July 2017 that we are actively working on and expect to extend. Each facility manufactures different products, and therefore, is not interchangeable. Natural or other uncontrollable occurrences at any of our manufacturing facilities could significantly reduce our productivity at such site and could prevent us from meeting our customers' requirements in a timely manner, or at all. Our losses from any such occurrence could significantly affect our operations and results of operations for a prolonged period of time.

Our restructuring and other cost-reduction efforts have included transitioning manufacturing operations to our facility in Shenzhen from other manufacturing facilities, such as Fort Collins, Colorado and Littlehampton, UK, which renders us

increasingly reliant upon our Shenzhen facility. A disruption in manufacturing at our Shenzhen facility, from whatever cause, could have a significantly adverse effect on our ability to fulfill customer orders, our ability to maintain customer relationships, our costs to manufacture our products and, as a result, our results of operations and financial condition.

Our results of operations could be affected by natural disasters and other events in the locations in which we or our customers or suppliers operate.

We have manufacturing and other operations in locations subject to natural occurrences such as severe weather and geological events including earthquakes or tsunamis that could disrupt operations. In addition, our suppliers and customers also have operations in such locations. A natural disaster, fire, explosion, or other event that results in a prolonged disruption to our operations, or the operations of our customers or suppliers, may materially adversely affect our business, results of operations, or financial condition.

Our operations in the People's Republic of China are subject to significant political and economic uncertainties over which we have little or no control and we 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 the PRC, which exposes us to risks, such as exchange controls and currency restrictions, changes in local economic conditions, changes in customs regulations, changes in tax policies, changes in PRC laws and regulations, possible expropriation or other PRC government actions, and unsettled political conditions. These factors may have a material adverse effect on our operations, business, results of operations, and financial condition. Please see "*We are exposed to risks associated with worldwide financial markets and the global economy*" risk factor above.

The PRC'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, rate of growth, control of foreign exchange and allocation of resources. While the economy of the PRC has experienced significant growth in the past 20 years, growth has been uneven across different regions and amongst various economic sectors of the PRC. The PRC government has implemented various measures to encourage economic development and guide the allocation of resources. Strikes by workers and picketing in front of the factory gates of certain companies in Shenzhen have caused unrest among some workers seeking higher wages, which could impact our manufacturing facility in Shenzhen. While some of the government's measures may benefit the overall economy of the PRC, they may have a negative effect on us. For example, our financial condition and results of operations may be materially and adversely affected by government control over capital investments or changes in tax regulations that are applicable to us as well as work stoppages.

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

We transitioned the purchasing of a substantial portion of components for our thin film products to Asian suppliers to lower our materials costs and shipping expenses. These components might require us to incur higher than anticipated testing or repair 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.

Our evolving manufacturing footprint may increase our risk.

The nature of our manufacturing is evolving as we continue to grow by acquisition. Historically, our principal manufacturing location was in China; however, we have also added specialized manufacturing at our Littlehampton, UK and Ronkonkoma, NY facilities. From time to time we may migrate manufacturing of specific products between facilities or to third party manufacturers. If we do not successfully coordinate the timely manufacturing and distribution of our products during this time, we may have insufficient supply of products to meet customer demand, we could lose sales, we may experience a build-up in inventory, or we may incur additional costs.

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 timely manufacture our products 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:

- the 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;
- the need to qualify alternative suppliers;
- suppliers that may provide parts, components or subassemblies that are defective, contain counterfeit goods or are otherwise misrepresented to us in terms of form, fit or function; and
- the inability of our suppliers to develop technologically advanced products to support our growth and development of new products.

Qualifying alternative suppliers could be time consuming and lead to delays in, or prevention of delivery of products to our customers, as well as increased costs. 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. From time to time, 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 purchases 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 or legacy inverter warranty operations, we may be unable to deliver further product or legacy inverter warranty service to our customers. To mitigate the risk of not having a supply of critical parts, components, and subassemblies for our products, we proactively make additional purchases which we believe addresses such risk.

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

We place orders with many of our suppliers based on our customers' quarterly forecasts and our annual forecasts. These forecasts are based on our customers' and our expectations as to demand for our products. As the quarter and the year progress, such demand can change rapidly or we may realize that our customers' expectations were overly optimistic or pessimistic, especially when industry or general economic conditions change. Orders with our suppliers cannot always be amended in 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. See *Note 18. Commitments and Contingencies* in ITEM 8 "Financial Statements and Supplementary Data" for more information on our commitments. If demand for our products does not continue at current levels, we might not be able to use all of the components that we are required to purchase under these commitments and agreements, and our reserves for excess and obsolete inventory may increase, which could have a material adverse effect on our results of operations. If demand for our products exceeds our customers' and our forecasts, we may not be able to timely obtain sufficient raw materials, parts, components, or subassemblies, on favorable terms or at all, to fulfill the excess demand.

We are exposed to risks associated with worldwide financial markets and the global economy.

Our business depends on the expansion of manufacturing capacity in our end markets and the installation base for the products we sell. In the past, severe tightening of credit markets, turmoil in the financial markets, and a weakening global economy have contributed to slowdowns in the industries in which we operate. Some of our key markets depend largely on consumer spending. Economic uncertainty, such as that recently experienced in the PRC, 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 uncertain market conditions may also lead to 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 could

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. As discussed in “*Our orders of raw materials, parts, components, and subassemblies are based on demand forecasts,*” 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. Conversely, if market conditions were to unexpectedly recover and demand for our products were to increase suddenly, we might not be able to respond quickly enough, which could have a negative impact on our results of operations and customer relations.

We may not realize the expected results from the implementation of restructuring plans.

During the second quarters of 2013, 2014, and 2015, we implemented restructuring plans to align our cost structure with current industry conditions in our business. As part of these restructuring plans we reduced staff, exited excess office and warehouse space, relocated engineering and research and development resources closer to our customers, and transferred various operating activities, such as supply chain management, manufacturing, engineering and other activities, to our Shenzhen, China facility. This means we are even more dependent on our China-based operations. As with any restructuring initiative, there could be many unintended results and there are always risks that execution may not meet expectations in the future. If we are unable to effectively execute the initiatives under the plan or our customers' requirements change, we may not realize the expected results or could incur restructuring charges greater than anticipated, which could materially affect our financial condition and results of operations.

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. 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 we operate in 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 ours, improve the design and performance of their products, and introduce new products with enhanced performance characteristics. In order 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.

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 the PRC. 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.

The PRC commercial law is relatively undeveloped compared to the commercial law in the United States. Limited protection of intellectual property is available under PRC law. Consequently, manufacturing our products in the PRC 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 the PRC.

Activities necessary to integrate acquisitions may result in costs in excess of current expectations or be less successful than anticipated.

In 2014 we acquired PCM, HiTek, and UltraVolt, and we may acquire other businesses in the future. The success of such transactions will depend on, among other things, our ability to integrate assets and personnel acquired in these transactions and to apply our internal controls process to these acquired businesses. The integration of acquisitions may require significant attention from our management, and the diversion of management's attention and resources could have a material adverse effect on our ability to manage our business. Furthermore, we may not realize the degree or timing of benefits we anticipated when we first entered into the acquisition transaction. If actual integration costs are higher than amounts originally anticipated, 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.

Return on investments or interest rate declines on plan investments could result in additional unfunded pension obligations for the HiTek Power pension plan.

We currently have unfunded obligations in the HiTek Power pension plan. The extent of future contributions to the pension plan depends heavily on market factors such as the discount rate used to calculate our future obligations and the actual return on plan assets which enable future payments. We estimate future contributions to the plan using assumptions with respect to these and other items. While we are obligated to contribute \$1.0 million per year through 2024 and our management believes that these assumptions are appropriate, changes to those assumptions could have a significant effect on future contributions. Additionally, a material deterioration in the funded status of the plan could increase pension expenses and reduce our profitability. See *Note 16. Retirement Plans* in ITEM 8 "Financial Statements and Supplementary Data."

We must continually design and introduce new products into the markets we serve to respond to competition and rapid technological changes.

We operate in a highly competitive environment where innovation is critical, our future success depends on many factors, including the effective commercialization and customer acceptance of our products and services. The development, introduction and support of a broadening set of products is critical to our continued success. Our results of operations could be adversely affected if we do not continue to develop new products, improve and develop new applications for existing products, and differentiate our products from those of competitors resulting in their adoption by customers.

We are subject to risks inherent in international operations.

Sales to our customers outside the United States were approximately 35.3% and 37.2% of our total sales for the years ended December 31, 2015 and 2014. The recent acquisitions of the power controls modules, and high voltage product lines have increased our presence in international locations. India is becoming a focus of possible expansion for sales, research and development, and manufacturing. Our success producing goods internationally and 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 and maintain 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;
- trade restrictions, political instability, disruptions in financial markets, and deterioration of economic conditions;
- customs regulations and the import and export of goods (including, but not limited to, any United States imposition of antidumping or countervailing duty orders, safeguards, remedies, or compensation with respect to our products or subcomponents of our products, particularly those produced in the PRC);
- 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 including \$14.5 million in accounts receivable from foreign customers as of December 31, 2015; and
- changes in tariffs, taxes, and foreign currency exchange rates.

Our profitability and 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.

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 in which they receive payment for such sales could be less valuable at the time of receipt as a result of exchange rate fluctuations. For example, in the year ended December 31, 2015, the currency rate for the Euro declined 10.3%. Given recent acquisitions in Europe, our exposure to fluctuations in the value of the Euro is becoming more significant. 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 materially and adversely affect our results of operations.

Changes in the value of the Chinese yuan could impact the cost of our operation in Shenzhen, PRC and our sales growth in our PRC markets.

The PRC government is continually pressured by its trading partners to allow its currency to float in a manner similar to other major currencies. In August 2015, China's currency devalued by a cumulative 4.4% against the U.S. dollar, making Chinese exports cheaper and imports into China more expensive by that amount. The move suggests China is looking for ways to get its economy growing again. However, the move negatively impacts U.S. businesses that trade with China because it puts them at a cost disadvantage and the move will likely reignite criticism that the Chinese government keeps the currency artificially low to help its own manufacturers to the detriment of US based companies. 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 PRC 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 the PRC, thereby having a material and adverse effect on our financial condition and results of operations.

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 make use of market relationships we have developed, or an inability to prevent others from using technology.

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, tax, customs, commercial, and other disputes or similar matters. Litigation often requires a substantial amount of our management's 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 our marketable securities that we have traditionally held as short-term investments may not be liquid or readily available.

In the past, certain of our investments have been affected by external market conditions that impacted the liquidity of the investment. We do not currently have investments with reduced liquidity, but external market conditions that we cannot

anticipate or mitigate may impact the liquidity of our marketable securities. Any changes in the liquidity associated with these investments may require us to borrow funds at terms that are not favorable or repatriate cash from international locations at a significant cost. We cannot be certain that we will be able to borrow funds 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 those investments 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.

As of December 31, 2015, we have \$42.7 million of goodwill and \$34.1 million in intangible assets. We periodically review the estimated useful lives of our goodwill and identifiable intangible assets, taking into consideration any events or circumstances that might result in either a diminished fair value, or for intangible assets, a revised useful life. The events and circumstances include significant changes in the business climate, legal factors, operating performance indicators, and competition. Any impairment or revised 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 and regulations governing the import, export and customs duties related to our products. 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. Also, we may incur significant costs in complying with the myriad of different import, export and customs regulations as we seek to sell our products internationally. If we do not comply with current or future regulations, directives, and standards:

- we could be subject to fines and penalties;
- 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.

Recently enacted financial reform legislation will result in new laws and regulations that may increase our costs of operations.

The Dodd-Frank Wall Street Reform and Consumer Protection Act (the "Dodd-Frank Act") requires various federal agencies to adopt a broad range of new implementing rules and regulations, and to prepare numerous studies and reports for Congress. On August 22, 2012, under the Dodd-Frank Act, the SEC adopted new requirements for companies that use certain minerals and metals, known as conflict minerals, in their products, whether or not these products are manufactured by third parties. These requirements will require companies to perform due diligence, disclose and report whether or not such minerals originate from the Democratic Republic of Congo and adjoining countries. We will have to perform sufficient due diligence to determine whether such minerals are used in the manufacture of our products. However, the implementation of these new requirements could adversely affect the sourcing, availability and pricing of such minerals if they are found to be used in the manufacture of our products. In addition, we will incur additional costs to comply with the disclosure requirements, including costs related to determining the source of any of the relevant minerals and metals used in our products. Since our supply chain is complex, we may not be able to sufficiently verify the origins for these minerals and metals used in our products through the due diligence procedures that we implement, which may harm our reputation. In such event, we may also face difficulties in satisfying customers who require that all of the components of our products are certified as conflict mineral free.

The market price of our common stock has fluctuated and may continue to fluctuate for reasons over which we have no control.

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 management's attention and resources.

Our operating results are subject to fluctuations, and if we fail to meet the expectations of securities analysts or investors, our share price may decrease significantly.

Our annual and quarterly results may vary significantly depending on various factors, many of which are beyond our control. Because our operating expenses are based on anticipated revenue levels, our sales cycle for development work is relatively long, and a high percentage of our expenses are fixed for the short term, a small variation in the timing of recognition of revenue can cause significant variations in operating results from period to period. If our earnings do not meet the expectations of securities analysts or investors, the price of our stock could decline.

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. Failure to retain or attract key personnel could significantly harm our results of operations and competitive position. We must develop our personnel to provide succession plans capable of maintaining continuity in the midst of the inevitable unpredictability of personnel retention. While we have plans for key management succession and long-term compensation plans designed to retain our senior employees, if our succession plans do not operate effectively, our business could be adversely affected.

We have historically made acquisitions and divestitures. However, we may not find suitable acquisition candidates in the future and we may not be able to successfully integrate and manage acquired businesses. In either an acquisition or a divestiture, we may be required to make fundamental changes in our ERP, business processes and tools which could disrupt our core business and harm our financial condition.

In the past, we have made strategic acquisitions of other corporations and entities, as well as asset purchases, and we continue to evaluate potential strategic acquisitions of complementary companies, products, and technologies. We have also divested businesses. In the future, we could:

- issue stock that would dilute our current stockholders' percentage ownership;
- pay cash that would decrease our working capital;
- incur debt;
- assume liabilities; or
- incur expenses related to impairment of goodwill and amortization.

Acquisitions and divestitures also involve numerous risks, including:

- problems combining or separating the acquired/divested operations, systems, technologies, or products;
- an inability to realize expected sales forecasts, operating efficiencies or product integration benefits;
- difficulties in coordinating and integrating geographically separated personnel, organizations, systems, and facilities;
- difficulties integrating business cultures;
- unanticipated costs or liabilities;
- diversion of management's attention from our core business;
- adverse effects on existing business relationships with suppliers and customers;
- potential loss of key employees, particularly those of purchased organizations;
- incurring unforeseen obligations or liabilities in connection with either acquisitions or divestitures; and
- the failure to complete acquisitions even after signing definitive agreements which, among other things, would result in the expensing of potentially significant professional fees and other charges in the period in which the acquisition or negotiations are terminated.

We cannot assure you that we will be able to successfully identify appropriate acquisition candidates, to integrate any businesses, products, technologies, or personnel that we might acquire in the future or achieve the anticipated benefits of such transactions, which may harm our business.

Our existing credit facility contains restrictions that may limit our flexibility in operating our business.

In October 2012, we entered into a credit facility with Wells Fargo Bank, N.A. The credit facility contains various financial and negative operating covenants that limit our ability to engage in specified types of transactions. The financial covenant requires that we maintain a minimum fixed charge coverage ratio. The operating covenants limit our ability to, among other things:

- sell, transfer, lease or dispose of our assets;
- create, incur or assume additional indebtedness;
- encumber or permit liens on certain of our assets
- make restricted payments, including paying dividends on, repurchasing or making distributions with respect to our common stock;
- make specified investments (including loans and advances);
- consolidate, merge, sell or otherwise dispose of all or substantially all of our assets; and
- enter into certain transactions with our affiliates.

A breach of any of these covenants or a material adverse change to our business could result in a default under the credit agreement. Upon the occurrence of an event of default under our credit agreement, our lenders could elect to declare all amounts outstanding to be immediately due and payable and terminate all commitments to extend further credit. If we were unable to repay those amounts, the lenders could proceed against the collateral granted to them to secure such indebtedness. Please see *Note 22. Credit Facility* in ITEM 8 "Financial Statements and Supplementary Data" for more information on our credit facility.

Deterioration of economic conditions could negatively impact our business.

Our business may be adversely affected by changes in national or global economic conditions, including inflation, interest rates, availability of capital markets, consumer spending rates, energy availability and costs (including fuel surcharges) and the effects of governmental initiatives to manage economic conditions. Any such changes could adversely affect the demand for our products both in domestic and export markets, or the cost and availability of our needed raw materials and packaging materials, thereby negatively affecting our financial results.

A disruption in credit and other financial markets and deterioration of national and global economic conditions, could, among other things:

- negatively impact global demand for our products, which could result in a reduction of sales, operating income and cash flows;
- make it more difficult or costly for us to obtain financing for our operations or investments or to refinance our debt in the future;
- cause our lenders to depart from prior credit industry practice and make more difficult or expensive the granting of any technical or other waivers under our debt agreements to the extent we may seek them in the future;
- decrease the value of our investments; and
- impair the financial viability of our insurers.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

Information concerning our principal properties at December 31, 2015 is set forth below:

Location	Principal Activity	Ownership
Fort Collins, CO	Corporate headquarters, research and development, distribution, sales, and service	Leased
Villaz-St-Pierre, Switzerland	Research and development	Leased
San Jose, CA	Distribution, sales, and service, research and development	Leased
Vancouver, WA	Research and development, manufacturing, distribution, sales, and service	Leased
Georgetown, MA	Service	Leased
Toronto, Canada	Service	Leased
Shanghai, China	Distribution and sales	Leased
Shenzhen, China	Manufacturing, distribution, service, and research and development	Leased
Metzingen, Germany	Distribution, sales, and service	Leased
Warstein-Belecke, Germany	Research, distribution, sales, and service	Leased
Pune, India	Distribution and sales	Leased
Tokyo, Japan	Sales	Leased
Hwasung Kyunggi-do, South Korea	Distribution, sales, and service	Leased
Sungnam City, South Korea	Distribution, sales, service and research and development	Owned
Singapore	Sales and service	Leased
Taipei, Taiwan	Distribution, sales, and service	Leased
Littlehampton, United Kingdom	Manufacturing, distribution, service, and research and development	Leased
Ronkonkoma, New York	Manufacturing, distribution, service, and research and development	Leased

We consider the properties that we own or lease as adequate to meet our current and future requirements. We regularly assess the size, capability, and location of our global infrastructure and periodically make adjustments based on these assessments.

ITEM 3. LEGAL PROCEEDINGS

We are presently involved in disputes and legal actions arising in the normal course of our business. While we currently believe that the amount of any ultimate loss would not be material to our financial position, the outcome of these actions is inherently difficult to predict. In the event of an adverse outcome, the ultimate loss could have a material adverse effect on our financial position or reported results of operations. An unfavorable decision in patent litigation could require material changes in production processes and products or result in our inability to ship products or components found to have violated third-party patent rights. An unfavorable decision in a collection action against a customer we sold products to, or a claim or counterclaim from a customer related to alleged product failures, could also have a material adverse effect on our financial position or reported results of operations. We are engaged presently in such disputes and legal actions with customers for the inverter product line. We accrue loss contingencies in connection with our commitments and contingencies, including litigation, when it is probable that a loss has occurred and the amount of the loss can be reasonably estimated.

German Lawsuit against Jolaos related to Purchase Price Adjustment in Acquisition of Refusol

On April 8, 2013, our subsidiary AEI Holdings GmbH (“AEI Holdings”) acquired all the outstanding shares of Refusol Holding GmbH (“Refusol”) from Jolaos Verwaltungs GmbH (“Jolaos”) pursuant to the terms of a Sale and Purchase Agreement (the “SPA”). Under the SPA, the preliminary base price paid for the shares of Refusol was subject to a post-closing balance sheet adjustment based on confirmation of the financial statements of Refusol effective as of the closing date. AEI Holdings and Jolaos are in disagreement on various accounting adjustments to the closing date financial statements of Refusol. After repeated unsuccessful attempts to have Jolaos submit the dispute to an independent German accounting firm as required under the SPA, in December 2013 AEI Holdings petitioned the designated District Court in Stuttgart (Landgericht Stuttgart), Germany to review the dispute. Jolaos claimed that legal interpretations were required before the closing date financial statements could be submitted to an independent German accounting firm. AEI Holdings disagreed with Jolaos’ contentions in the case. This matter was settled in the fourth quarter of 2015.

ITEM 4. MINE SAFETY DISCLOSURES

None.

PART II**ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES****Principal Market and Price Range of Common Stock**

Our common stock is listed on the NASDAQ Global Select Market under the symbol "AEIS." At February 23, 2016, the number of common stockholders of record was 384, and the closing sale price of our common stock on the NASDAQ Global Select Market on that day was \$29.14 per share.

The table below shows the range of high and low closing sale prices for our common stock as quoted (without retail markup or markdown and without commissions) on the NASDAQ Global Select Market:

	2015		2014	
	High	Low	High	Low
First Quarter	\$ 27.35	\$ 22.29	\$ 28.88	\$ 22.88
Second Quarter	29.39	24.31	25.86	16.87
Third Quarter	27.73	23.47	19.90	16.60
Fourth Quarter	29.88	26.14	24.19	16.72

Dividend Policy

We have not declared or paid any cash dividends on our capital stock in our history as a public company. We currently intend to retain all future earnings to finance our business or make stock repurchases and do not anticipate paying cash or other dividends on our common stock in the foreseeable future.

Share Repurchases

In May 2014, our Board of Directors authorized a program to repurchase up to \$25.0 million of our stock over a twelve-month period. Under this program, we repurchased and retired 1.4 million shares of our common stock for a total of \$25.0 million. As of June 30, 2014 we completed the share repurchase program. All shares repurchased were executed in the open market and no shares were repurchased from related parties. Repurchased shares were retired and assumed the status of authorized and unissued shares.

In September 2015, our Board of Directors authorized a program to repurchase up to \$150.0 million of our stock over a thirty-month period. Under this program, on November 6, 2015, we entered into an accelerated stock repurchase arrangement with Morgan Stanley & Co. LLC (the "Counterparty") pursuant to a Fixed Dollar Accelerated Share Repurchase Transaction (the "ASR Agreement") to purchase \$50.0 million of shares of our common stock. On November 9, 2015, we advanced \$50.0 million to the Counterparty. This transaction used \$39.6 million and we received 1.4 million shares of our common stock based on then-current market prices of the \$50.0 million advanced, representing 79% of the estimated shares to be repurchased under the ASR Agreement. The initial payment was recorded as a reduction to Stockholders' equity in our Consolidated Balance Sheets as of December 31, 2015. The total number of shares repurchased under the ASR Agreement is based on the average of the daily volume-weighted average prices of the common stock during the term of the Agreement, less a discount. At settlement, if the Counterparty pays less than the original amount advanced, they will be required to reimburse us. If the Counterparty pays more than the original advance, we will chose to reimburse the Counterparty with either cash or additional shares. Final settlement of the ASR Agreement is expected to occur in the second quarter of 2016.

The following table summarizes information with respect to the company's purchase of its common stock during the year ended December 31, 2015 (in thousands, except for average price per share):

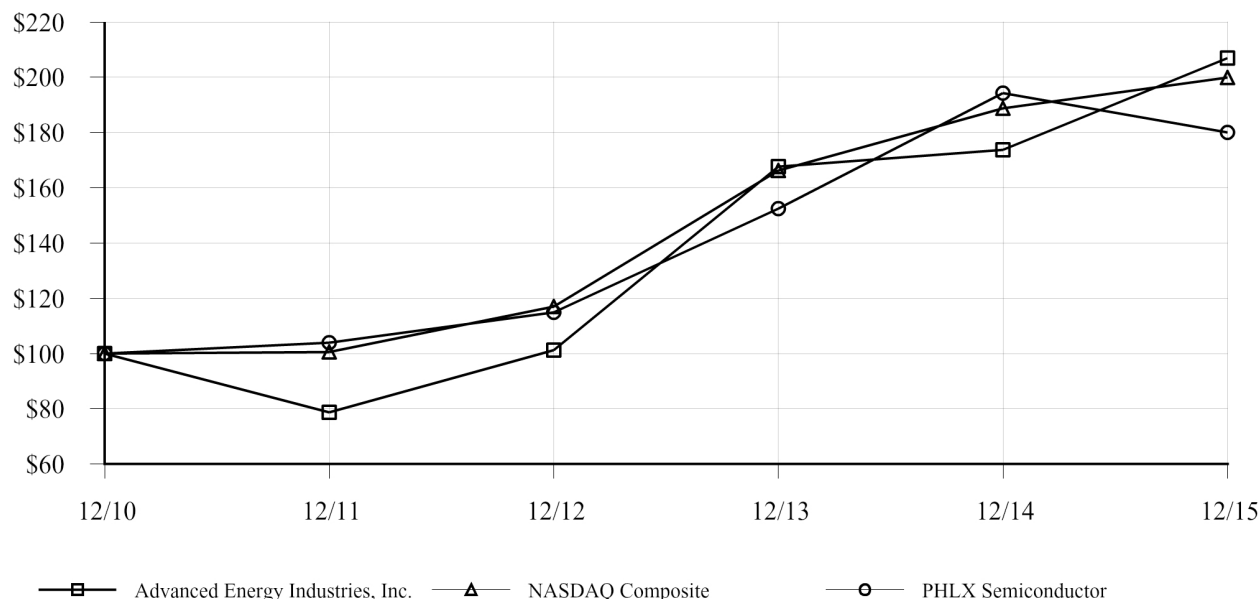
Month	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Program	Approximate Value of Shares that May Yet Be Purchased Under the Program
November - ASR (1)	1,382	\$ 28.67	1,382	
Total	1,382		1,382	\$ 110,387

(1) Shares purchased in November 2015 does not include the final share delivery amount under the ASR Agreement.

Performance Graph

The performance graph below shows the five-year cumulative total stockholder return on our common stock during the period from December 31, 2010 through December 31, 2015. This is compared with the cumulative total return of the NASDAQ Composite Index and the Philadelphia Semiconductor Index (PHLX) over the same period. The comparison assumes \$100 was invested on December 31, 2010 in Advanced Energy common stock and in each of the foregoing indices and assumes reinvestment of dividends, if any. Dollar amounts in the graph are rounded to the nearest whole dollar. The performance shown in the graph represents past performance and should not be considered an indication of future performance.

COMPARISON OF 5 YEAR CUMULATIVE TOTAL RETURN*
Among Advanced Energy Industries, Inc., the NASDAQ Composite Index, and the PHLX Semiconductor Index



*\$100 invested on 12/31/10 in our stock or index, including reinvestment of dividends. Indices and our stock performance calculated on a calendar year-end basis.

	12/10	12/11	12/12	12/13	12/14	12/15
Advanced Energy Industries, Inc.	\$ 100.00	\$ 78.67	\$ 101.24	\$ 167.60	\$ 173.75	\$ 206.96
NASDAQ Composite	100.00	100.53	116.92	166.19	188.78	199.95
PHLX Semiconductor	100.00	103.93	114.90	152.42	194.30	180.02

ITEM 6. SELECTED FINANCIAL DATA

The selected Consolidated Statements of Operations data and the related Consolidated Balance Sheets data were derived from our audited Consolidated Financial Statements. The information below is not necessarily indicative of results of future operations and should be read in conjunction with Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations" of this Form 10-K in order to understand more fully the factors that may affect the comparability of the information presented below:

	Years Ended December 31,				
	2015	2014	2013	2012	2011
Consolidated Statements of Operations Data:					
	(In thousands, except per share data)				
Sales	\$ 414,811	\$ 367,333	\$ 299,381	\$ 228,287	\$ 301,473
Operating income	106,656	86,091	47,847	17,446	42,847
Income from continuing operations before income taxes	105,442	86,005	48,322	19,698	43,749
Income from continuing operations, net of income taxes	83,482	69,495	59,710	11,997	31,944
(Loss) income from discontinued operations, net of income taxes	(241,968)	(22,513)	(27,624)	8,584	4,370
Net (loss) income	(158,486)	46,982	32,086	20,581	36,314
Earnings per Share:					
Continuing Operations:					
Basic earnings per share	\$ 2.05	\$ 1.72	\$ 1.51	\$ 0.31	\$ 0.73
Diluted earnings per share	\$ 2.03	\$ 1.69	\$ 1.47	\$ 0.30	\$ 0.73
Discontinued Operations:					
Basic (loss) earnings per share	\$ (5.94)	\$ (0.56)	\$ (0.70)	\$ 0.22	\$ 0.10
Diluted (loss) earnings per share	\$ (5.94)	\$ (0.56)	\$ (0.70)	\$ 0.22	\$ 0.10
Net (Loss) Income:					
Basic (loss) earnings per share	\$ (3.89)	\$ 1.16	\$ 0.81	\$ 0.53	\$ 0.84
Diluted (loss) earnings per share	\$ (3.89)	\$ 1.14	\$ 0.79	\$ 0.52	\$ 0.83
Basic weighted-average common shares outstanding	40,746	40,420	39,597	38,879	43,465
Diluted weighted-average common shares outstanding	41,077	41,034	40,667	39,447	43,954
Consolidated Balance Sheets Data:					
Total assets	\$ 462,688	\$ 684,568	\$ 652,977	\$ 537,242	\$ 532,460

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

Certain statements set forth below under this caption constitute forward-looking statements. See "Business — Special Note Regarding Forward-Looking Statements" in ITEM 1 of this Annual Report on Form 10-K for additional factors relating to such statements, and see "Risk Factors" in Item 1A for a discussion of certain risks applicable to our business, financial condition and results of operations.

Overview

We design, manufacture, sell, and support power conversion products that transform power into various usable forms. Our products enable manufacturing processes that use thin film for various products, such as semiconductor devices, flat panel displays, thin film renewables, architectural glass, optical coating and consumer products decorative and functional coating. We also supply thermal instrumentation products for advanced temperature control in the thin film process for these same markets. Our power control modules provide power control solutions for industrial applications where heat treatment and processing are used such as glass manufacturing, metal fabrication and treatment, material and chemical processing. Our high voltage power supplies and modules are used in applications such as semiconductor ion implantation, scanning electron microscopy, chemical analysis such as mass spectrometry and various applications using X-ray technology and electron guns for both analytical and processing applications. Our network of global service support centers provides a recurring revenue opportunity as we offer repair services, conversions, upgrades, and refurbishments and used equipment to companies using our products.

As of December 31, 2015, we have discontinued our inverter engineering, manufacturing and sales of our inverter product line. As such, all inverter product revenues, costs, assets and liabilities are reported in "Loss from discontinued operations, net of income taxes" in all periods in our Consolidated Statements of Operations.

As always, we enter 2016 looking to strengthen our position and grow revenue through new products, design wins, new applications and geographical growth, continuously emphasizing margin expansion, cash generation and cost improvement.

CRITICAL ACCOUNTING ESTIMATES

The preparation of Consolidated Financial Statements and related disclosures in conformity with accounting principles generally accepted in the United States of America ("U.S. GAAP") requires management to make judgments, assumptions, and estimates that affect the amounts reported. *Note 1. Operations and Summary of Significant Accounting Policies and Estimates* in ITEM 8 "Financial Statements and Supplementary Data" describes the significant accounting policies used in the preparation of our Consolidated Financial Statements. The accounting positions described below are significantly affected by critical accounting estimates. Such accounting positions require significant judgments, assumptions, and estimates to be used in the preparation of the Consolidated Financial Statements, actual results could differ materially from the amounts reported based on variability in factors affecting these statements.

Revenue Recognition

We recognize revenue from product sales upon transfer of title and risk of loss to our customers provided that there is evidence of an arrangement, the sales price is fixed or determinable, and the collection of the related receivable is reasonably assured. In most transactions, we have no obligations to our customers after the date products are shipped, other than pursuant to warranty obligations. Shipping and handling fees billed to customers, if any, are recognized as revenue. The related shipping and handling costs are recognized in cost of sales.

We maintain a credit approval process and we make significant judgments in connection with assessing our customers' ability to pay at the time of shipment. Despite this assessment, from time to time, our customers are unable to meet their payment obligations. We continuously monitor our customers' credit worthiness, and use our judgment in establishing a provision for estimated credit losses based upon our historical experience and any specific customer collection issues that we have identified. While such credit losses have historically been within our expectations and the provisions established, a significant change in the liquidity or financial position of our customers could have a material adverse impact on the collectability of accounts receivable and our future operating results. Additionally, if our credit loss rates prove to be greater than we currently estimate, we record additional reserves for doubtful accounts.

Inventory

We value our inventory at the lower of cost (first-in, first-out method) or market. We regularly review inventory quantities on hand and record a provision to write-down excess and obsolete inventory to its estimated net realizable value, if less than cost, based primarily on our estimated forecast of product demand. Demand for our products can fluctuate significantly. Our industry is subject to technological change, new product development, and product technological obsolescence that could result in an increase in the amount of obsolete inventory quantities on hand. Therefore, any significant unanticipated changes in demand or technological developments in excess of our current estimates could have a significant impact on the value of our inventory and our reported operating results.

Warranty Costs

We provide for the estimated costs to fulfill customer warranty obligations upon the recognition of the related revenue. We offer warranty coverage for a majority of our Precision Power products for periods typically ranging from 12 to 24 months after shipment. We warranted our inverter products for five to ten years and provided the option to purchase additional warranty coverage up to 20 years. The warranty expense accrued related to our standard inverter product warranties is now considered part of our discontinued operations and is recorded as such on our Consolidated Balance Sheets. See *Note 3. Discontinued Operations* in ITEM 8 "Financial Statements and Supplementary Data" for more information on our discontinued operations and *Note 14. Warranties* in ITEM 8 "Financial Statements and Supplementary Data" for more information on our warranties from continuing operations. We estimate the anticipated costs of repairing our products under such warranties based on the historical costs of the repairs. The assumptions we use to estimate warranty accruals are reevaluated periodically, in light of actual experience, and when appropriate, the accruals are adjusted. Should product failure rates differ from our estimates, actual costs could vary significantly from our expectations.

Intangible Assets, Goodwill and Other Long-Lived Assets

As a result of our acquisitions, we recorded intangible assets and goodwill. Goodwill and indefinite-lived intangible assets are subject to annual impairment testing, as well as testing upon the occurrence of any event that indicates a potential impairment. The annual impairment test can be performed using an assessment of qualitative factors in determining if it is more likely than not that goodwill is impaired. If this assessment indicates that it is more likely than not that goodwill is impaired, then the next step of impairment testing compares the fair value of a reporting unit to its carrying value. Goodwill would be impaired if the resulting implied fair value of goodwill was less than the recorded carrying value of the goodwill.

Finite-lived intangible assets and other long-lived assets are subject to an impairment test if there is an indicator of impairment. When we determine that the carrying value of intangibles or other long-lived assets may not be recoverable based

upon the existence of one or more indicators of impairment, we use the projected undiscounted cash flow method to determine whether an impairment exists, and then measure the impairment using discounted cash flows and other fair value measurements. The carrying value and ultimate realization of these assets is dependent upon our estimates of future earnings and benefits that we expect to generate from their use. If our expectations of future results and cash flows are significantly diminished, intangible assets, long-lived assets, and goodwill may be impaired and the resulting charge to operations may be material. Additionally, the estimation of useful lives and expected cash flows require us to make significant judgments regarding future periods that are subject to some factors outside of our control. Changes in these estimates could result in significant revisions to our carrying value of these assets and may result in material charges to our results of operations.

In 2015, we performed an assessment of qualitative factors for our annual impairment test of the goodwill associated with our Precision Power business unit. The factors reviewed included macroeconomic conditions, industry and market conditions, cost factors, and overall financial performance of each business unit. This assessment resulted in the conclusion that there was no impairment of goodwill in our Precision Power business in 2015.

In June 2015 the Company completed its six-month long process of seeking strategic alternatives for its inverter business and no satisfactory offers were received for all or a part of the inverter business. On June 29, 2015, we announced our decision to wind down our solar inverter business to focus solely on our Precision Power business. The result of this assessment was the recording of various asset impairments including Goodwill and Intangibles which is reflected in the "Loss from discontinued operations, net of income taxes" on our Consolidated Statements of Operations, as we have discontinued our inverter products as of December 31, 2015. See *Note 3. Discontinued Operations* in ITEM 8 "Financial Statements and Supplementary Data."

Income Taxes

We are subject to income taxes in the United States and numerous foreign jurisdictions. Significant judgment is required in determining our provision for income taxes and income tax assets and liabilities, including evaluating uncertainties in the application of accounting principles and complex tax laws. We record a provision for income taxes for the anticipated tax consequences of the reported results of operations using the asset and liability method. Under this method, we recognize deferred tax assets and liabilities for the expected future tax consequences of temporary differences between the financial reporting and tax bases of assets and liabilities, as well as for operating loss and tax credit carryforwards. Deferred tax assets and liabilities are measured using the tax rates that are expected to apply to taxable income for the years in which those tax assets and liabilities are expected to be realized or settled. We record a valuation allowance to reduce our deferred tax assets to the net amount that we believe is more likely than not to be realized. We recognize tax benefits from uncertain tax positions only if we believe that it is more likely than not that the tax position will be sustained on examination by the taxing authorities based on the technical merits of the position. Although we believe that we have adequately reserved for our uncertain tax positions, we can provide no assurance that the final tax outcome of these matters will not be materially different. We make adjustments to these reserves when facts and circumstances change, such as the closing of a tax audit or the refinement of an estimate. To the extent that the final tax outcome of these matters is different than the amounts recorded, such differences will affect the provision for income taxes in the period in which such determination is made and could have a material impact on our financial condition and operating results. The provision for income taxes includes the effects of any reserves that we believe are appropriate, as well as the related net interest and penalties. For more details see *Note. 4 Income Taxes* in ITEM 8 "Financial Statements and Supplementary Data."

Business Environment and Trends

SEMICONDUCTORS

Investment in semiconductor capital equipment spending worldwide was essentially flat year over year in 2015. After entering into 2015 with a record first quarter sales to our semiconductor OEM customers that continued near this level through Q3, there was a decrease in investments in Q4. Even as the semi equipment industry experienced this pause, the trends of increased usage of mobility, connectivity and the cloud continue to increase demand for higher density memory, high speed logic devices and lower power consumption, which we expect to continue going forward. Capital spending across the industry should lend itself to next-generation technologies, such as 3D devices, 3D packaging and multi-patterning in logic and foundry.

The industry's transition to 3D devices is generating increasing demand for RF power supplies and accessories. The growing number of steps associated with the deposition and etch processes is driving an increase in the number of process chambers per fab and higher content of more advanced power solutions per chamber. As etching processes become more challenging due to increasing aspect ratios in advanced 3D devices, more advanced RF technology that includes pulsing and increased control and instrumentation is needed. We are capitalizing on these trends and providing a broader range of more complex combinations of RF power and frequencies and launching more capable matching networks to manage and control the delivered power.

INDUSTRIAL CAPITAL EQUIPMENT

In industrial applications, we remain focused on taking our products to new applications and world regions, increasing our penetration into Asia, Europe, and North America. We made gains across an array of industries ranging from defense to

analytical equipment. We believe large area LCD demand will continue in 2016 with an improved outlook for larger and higher definition TVs. We believe our power conversion technologies for both AC and DC sputtering are well-positioned in these markets and we will benefit from increased demand as panels with thin film technologies improve efficiencies.

Throughout 2015, demand for our products used in many industrial thin film coating markets increased, particularly in industrial manufacturing areas for products such as automotive parts, machine tools, electro-magnetic interference films, aesthetic, optical and tribological coatings. We expect this demand to continue in 2016. AE will continue to strengthen its position in these markets through internal product development and potential acquisition of complimentary product lines. These complimentary products will also allow us to participate in emerging and established precision power conversion applications by delivering customers value through improved process control with more flexibility to address diverse application requirements.

Results of Operations

Our analysis presented below is organized to provide the information we believe will facilitate an understanding of our historical performance and relevant trends going forward. Our results of operations include the results of PCM, HiTek, and UltraVolt from their respective acquisition dates of: January 27, 2014, April 12, 2014, and August 4, 2014, through December 31, 2014 and the full year ended December 31, 2015. This discussion should be read in conjunction with our Consolidated Financial Statements, including the notes thereto, in Item 8 of this Annual Report on Form 10-K.

REPORTING IN FISCAL 2015

As of December 31, 2015, Advanced Energy is organized as a single business unit, as we discontinued our inverter products, manufacturing and sales as of December 31, 2015. See Note 3. *Discontinued Operations* in ITEM 8 "Financial Statements and Supplementary Data." All prior periods disclosed have been recast to reflect continuing operations. Results of discontinued operations are reflected in the "Loss from discontinued operations, net of income taxes" in our Consolidated Statements of Operations. We principally serve our OEM and end customers in the semiconductor, flat panel display, high voltage, solar panel, and other capital equipment markets.

The following table sets forth, for the periods indicated, certain data derived from our Consolidated Statements of Operations (in thousands):

	Years Ended December 31,		
	2015	2014	2013
Sales	\$ 414,811	\$ 367,333	\$ 299,381
Gross profit	216,870	188,060	145,593
Operating expenses	110,214	101,969	97,746
Operating income	106,656	86,091	47,847
Other income (expense)	(1,214)	(86)	475
Income from continuing operations before income taxes	105,442	86,005	48,322
Provision (benefit) for income taxes	21,960	16,510	(11,388)
Income from continuing operations, net of income taxes	\$ 83,482	\$ 69,495	\$ 59,710

The following table sets forth, for the periods indicated, the percentage of sales represented by certain items reflected in our Consolidated Statements of Operations:

	Years Ended December 31,		
	2015	2014	2013
Sales	100.0 %	100.0 %	100.0 %
Gross profit	52.3 %	51.2 %	48.6 %
Operating expenses	26.5 %	27.7 %	32.7 %
Operating income	25.8 %	23.5 %	15.9 %
Other income (expense)	(0.3)%	— %	0.1 %
Income from continuing operations before income taxes	25.5 %	23.5 %	16.0 %
Provision (benefit) for income taxes	5.3 %	4.5 %	(3.8)%
Income from continuing operations, net of income taxes	20.2 %	19.0 %	19.8 %

SALES

The following tables summarize annual net sales, and percentages of net sales, by product line for each of the years ended 2015, 2014, and 2013 (in thousands):

	Years Ended December 31,			Increase		Percent Change	
	2015	2014	2013	2015 v. 2014	2014 v. 2013	2015 v. 2014	2014 v. 2013
Semiconductor capital equipment market	\$ 266,465	\$ 234,223	\$ 176,230	\$ 32,242	\$ 57,993	13.8%	32.9%
Industrial capital equipment	84,217	78,585	70,575	5,632	8,010	7.2%	11.3%
Global Support	64,129	54,525	52,576	9,604	1,949	17.6%	3.7%
Total	<u>\$ 414,811</u>	<u>\$ 367,333</u>	<u>\$ 299,381</u>	<u>\$ 47,478</u>	<u>\$ 67,952</u>	<u>12.9%</u>	<u>22.7%</u>

	Years Ended December 31,		
	2015	2014	2013
Semiconductor capital equipment market	64.2%	63.8%	58.9%
Industrial capital equipment	20.3%	21.4%	23.6%
Global Support	15.5%	14.8%	17.6%
Total	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>

2015 SALES COMPARED TO 2014

Total sales for the twelve months ended December 31, 2015 increased 12.9% to \$414.8 million from \$367.3 million for the twelve months ended December 31, 2014. The increase in sales was driven by strong semiconductor sales through the third quarter, coupled with the addition of a full year of sales from our high voltage lines acquired mid-year in 2014.

In 2015, sales in our thin film semiconductor market increased 13.8% to \$266.5 million, or 64.2% of sales, from \$234.2 million, or 63.8% of sales in 2014. This increase was driven by strong market conditions across the semiconductor market driven by our leadership in etch applications. As expected, we saw investment levels decrease in the fourth quarter in line with the rest of the market.

Sales to the industrial capital equipment markets increased 7.2% to \$84.2 million, or 20.3% of sales in 2015, from \$78.6 million, or 21.4% of sales in 2014. The markets that comprise our Industrial capital equipment markets include flat panel display, thin film renewables, data storage, architectural glass, and other industrial thin-film manufacturing equipment markets such as automotive parts and optical coatings. Our acquisitions of high voltage and power control module product lines were a primary driver of the increase in the Industrial market.

Global support revenue increased by 17.6% for 2015 to \$64.1 million, or 15.5% of total sales, as compared to \$54.5 million, or 14.8% of total sales in 2014. This increase in sales due to market share gains in break/fix repairs as key end users move back to AE and away from third party repairs. Additionally, our non-break/fix business saw the accelerated growth in upgrades and retrofits of older AE Legacy products experienced in 2014 continue into 2015.

2014 SALES COMPARED TO 2013

Total sales increased 22.7% to \$367.3 million in 2014 as compared to \$299.4 million in 2013. The increase in sales was driven by an increase in spending in the semiconductor market, with large capital investments being made for new production capacity. Additionally, the acquisitions of high voltage and power control module product lines in early to mid-2014 drove higher sales in the industrial business.

In 2014, sales in our thin film semiconductor market increased 32.9% to \$234.2 million, or 63.8% of sales, from \$176.2 million or 58.9% of sales in 2013. This increase was driven by a strong increase in capital investments in the second half of 2014 and our increasing presence in etch applications from design wins for our new RF pulsing technology products. Additionally, our high voltage product line acquisitions added to our semiconductor market sales.

Sales to the industrial capital equipment markets increased 11.3% to \$78.6 million, or 21.4% of sales in 2014, from \$70.6 million, or 23.6% of sales in 2013. The markets that comprise our Industrial capital equipment markets include flat panel display, thin film renewables, data storage, architectural glass, and other industrial thin-film manufacturing equipment markets such as automotive parts and optical coatings. Our acquisitions of high voltage and power control module product lines were a primary driver of the increase in the Industrial market.

Global support revenue increased by 3.7% for 2014 to \$54.5 million, or 14.8% of total sales, as compared to \$52.6 million, or 17.6% of total sales in 2013. Despite slight market share loss early in the year, the latter half of 2014 saw an increase in sales due to market share gains in break/fix repairs.

Applied Materials Inc., our largest customer, accounted for \$123.5 million or 29.8% of our sales in 2015; \$109.3 million, or 29.8% of our sales in 2014; and \$96.2 million, or 32.1%, of our sales in 2013. Our sales to Applied Materials Inc. included sales for the semiconductor capital equipment market, as well as the solar and flat panel display markets.

GROSS PROFIT

Our gross profit was \$216.9 million or 52.3% of revenue in 2015 compared to \$188.1 million or 51.2% of revenue in 2014. The increase was primarily driven by an increase in sales as we expand into new markets with higher margins and continue to drive design wins.

Gross profit was \$188.1 million, or 51.2% of revenue in 2014 and \$145.6 million, or 48.6% of revenue in 2013. The increase in terms of absolute dollars was a result of higher sales. Additionally, continuous improvement on manufacturing efficiencies is driving higher revenue.

OPERATING EXPENSE

The following table summarizes our operating expenses as a percentage of sales for the years ended 2015, 2014 and 2013 (in thousands):

	Years Ended December 31,					
	2015		2014		2013	
Research and development	\$ 39,551	9.5%	\$ 36,915	10.0%	\$ 35,383	11.8%
Selling, general, and administrative	66,097	15.9%	58,549	15.9%	57,334	19.2%
Amortization of intangible assets	4,368	1.1%	4,998	1.4%	850	0.3%
Restructuring charges	198	—%	1,507	0.4%	4,179	1.4%
Total operating expenses	\$ 110,214	26.5%	\$ 101,969	27.7%	\$ 97,746	32.7%

We expect to continue to leverage our selling, general and administrative costs as revenues grow and expect to increase our investment in research and development.

In June 2015, we committed to a restructuring plan in relation to the wind down of our Inverter business which concluded December 31, 2015 and has been reflected as discontinued operation as of December 31, 2015. See *Note 3. Discontinued Operations* in ITEM 8 "Financial Statements and Supplementary Data." As a result of discontinued operations, amounts of general corporate overhead which had previously been reflected in our inverter segment have been included in the total operating expense in the table above in all periods presented.

In April 2014, we committed to a restructuring plan to take advantage of additional cost savings opportunities in connection with our acquisitions and realignment to a single organizational structure based on product line. The plan called for consolidating certain facilities and rebranding of products to allow us to use our resources more efficiently. This plan was completed in the fourth quarter of 2014.

In April 2013, we committed to a restructuring plan to take advantage of additional cost saving opportunities in connection with our acquisition of Refusol. The plan called for consolidating certain facilities, further centralizing our manufacturing and rationalizing certain products to most effectively meet customer needs. All activities under this restructuring plan were completed prior to December 31, 2013.

Research and Development

The markets we serve constantly present opportunities to develop products for new or emerging applications and require technological changes driving for higher performance, lower cost, and other attributes that will advance our customers' products. We believe that continued and timely development of new and differentiated products, as well as enhancements to existing products to support customer requirements, are critical for us to compete in the markets we serve. Accordingly, we devote significant personnel and financial resources to the development of new products and the enhancement of existing products, and we expect these investments to continue. All of our research and development costs have been expensed as incurred.

Research and development expenses for the twelve months ended December 31, 2015 increased \$2.6 million from the same period in 2014 and \$1.5 million in the twelve months ended December 31, 2014 as compared to the same period in 2013.

The increase is mainly due to the full year of costs from PCM, HiTek, and UltraVolt, in 2015, which were acquired throughout 2014. The acquisitions also drove the increase between the years ended December 31, 2014 and 2013.

Selling, General and Administrative

Our selling expenses support domestic and international sales and marketing activities that include personnel, trade shows, advertising, internal and third-party sales representative commissions, and other selling and marketing activities. Our general and administrative expenses support our worldwide corporate, legal, tax, financial, governance, administrative, information systems, and human resource functions in addition to our general management.

Selling general and administrative ("SG&A") expenses increased \$7.5 million in the twelve months ended December 31, 2015 as compared to the same period in 2014 primarily due to an increase in asset retirement obligations and bad debt expense, offset slightly by lower corporate spending.

SG&A expenses increased \$1.2 million in the twelve months ended December 31, 2014 as compared to the same period in 2013. The increase is due to the acquisitions of PCM, HiTek, and UltraVolt throughout 2014.

Amortization Expense

Amortization expense was \$4.4 million for the twelve months ended December 31, 2015, compared to \$5.0 million for the same period ending December 31, 2014 and \$0.9 million for the same period ending December 31, 2013. The decrease of \$0.6 million in 2015 is primarily due to the completion of the amortization of short-lived intangible assets acquired from PCM in 2014 coupled with the decrease in foreign exchange rates in Europe. The increase in amortization expense between 2013 and 2014 is due primarily to the acquisitions of PCM, HiTek, and UltraVolt, which added \$15.0 million, \$12.6 million, and \$10.9 million, respectively, of amortizable intangible assets.

Restructuring Charges

As a result of declines in certain markets that we serve, we initiated a plan in September 2011 to re-align our manufacturing and research and development activities to be closer to our customers and reduce production costs. These initiatives included headcount reductions, facilities closures, and asset impairments and were completed in the fourth quarter of 2012.

In April 2013, in connection with our acquisition of Refusol described in *Note 2. Business Acquisitions* in ITEM 8 "Financial Statements and Supplementary Data," we committed to a restructuring plan to take advantage of additional cost saving opportunities. These initiatives also included reductions in headcount, facility closures, and intangible asset impairments. This plan was substantially completed as of December 31, 2013.

In April 2014, we committed to a restructuring plan to take advantage of additional cost savings opportunities in connection with our acquisitions and realignment to a single organizational structure based on product line. The plan called for consolidating certain facilities and rebranding of products to allow us to use our resources more efficiently. This plan was completed as of December 31, 2014.

Other Income

Other income consists primarily of interest income and expense, foreign exchange gains and losses, and other miscellaneous items.

Interest (expense) income for the twelve month periods ending December 31, 2015, 2014, and 2013 was \$(0.9) million, \$(0.5) million, and \$0.4 million, respectively. The change between all periods was driven by reductions in interest income due to lower marketable securities held and lower interest rates in China.

Other (expense) income, net was \$(1.2) million in 2015, \$(0.1) million in 2014 and \$0.5 million in 2013. The change between 2015 and 2014 was driven by the decrease in foreign exchange rates coupled with a one-time settlement related to ending our relationship with a third-party service provider.

Provision for Income Taxes

We recorded a 2015 income tax expense of \$22.0 million or an effective tax rate of 20.8%. The effective rate differs from the federal statutory rate of 35% primarily due to the benefit of earnings in foreign jurisdictions which are subject to lower tax rates, federal research and development tax credit benefit, offset by a valuation allowance recorded on prior year foreign inverter business deferred tax assets.

We recorded a 2014 income tax expense of \$16.5 million or an effective tax rate of 19.2%. The effective rate differs from the federal statutory rate of 35% primarily due to the benefit of earnings in foreign jurisdictions which are subject to lower tax rates, and a benefit from the federal research and development tax credit.

We recorded a 2013 income tax benefit of \$11.4 million or an effective tax rate of (23.6%). The effective rate differs from the federal statutory rate of 35% primarily due to the benefit of earnings in foreign jurisdictions which are subject to lower tax rates, federal tax credits, state income tax benefits, and a benefit from the domestic production activities deduction.

Our future effective income tax rate depends on various factors, such as changes in tax laws, regulations, accounting principles, or interpretations thereof, and the geographic composition of our pre-tax income. We carefully monitor these factors and adjust our effective income tax rate accordingly.

Discontinued Operations

In June 2015, the Company completed its six-month long process of seeking strategic alternatives for its inverter business and no satisfactory offers were received for all or a part of the inverter business. On June 29, 2015, we announced our decision to wind down our solar inverter business to focus solely on our Precision Power business. The result of this assessment was the recording of various asset impairments including Goodwill and Intangibles, as disclosed in previous filings, which are reflected in the "Loss from discontinued operations, net of income taxes" in our Consolidated Statements of Operations, as we have discontinued our inverter engineering, sales, and production as of December 31, 2015. See *Note 3. Discontinued Operations* in ITEM 8 "Financial Statements and Supplementary Data." This constituted a strategic shift as inverter engineering, manufacturing and sales constituted a separate reporting segment for the Company.

The significant items included in Loss from discontinued operations, net of income taxes:

	Year Ended December 31,		
	2015	2014	2013
Sales	\$ 95,856	\$ 215,763	\$ 247,623
Cost of sales	139,045	209,795	183,080
Total operating expenses (including restructuring)	232,262	51,637	97,767
Operating loss from discontinued operations	(275,451)	(45,669)	(33,224)
Other expense	(55)	(658)	(814)
Loss from discontinued operations before income taxes	(275,506)	(46,327)	(34,038)
Provision for income taxes	(33,538)	(23,814)	(6,414)
Loss from discontinued operations, net of income taxes	<u>\$ (241,968)</u>	<u>\$ (22,513)</u>	<u>\$ (27,624)</u>

Non-GAAP Results

To evaluate business performance against business objectives and for planning purposes, management uses non-GAAP results. We believe these measures will enhance investors' ability to review our business from the same perspective as management and facilitate comparisons of this period's results with prior periods. These non-GAAP measures are not in accordance with U.S. GAAP and may differ from non-GAAP methods of accounting and reporting used by other companies. The presentation of this additional information should not be considered a substitute for results prepared in accordance with U.S. GAAP.

The non-GAAP results presented below exclude the impact of restructuring charges, stock-based compensation, amortization of intangible assets, acquisition-related costs, and nonrecurring executive severance (in thousands):

Reconciliation of Non-GAAP measure - operating expenses and operating income, excluding certain items

	Years Ended December 31,		
	2015	2014	2013
Gross Profit from continuing operations, as reported	\$ 216,870	\$ 188,060	\$ 145,593
Operating expenses from continuing operations, as reported	110,214	101,969	97,746
Adjustments:			
Restructuring charges	(198)	(1,507)	(4,179)
Acquisition-related costs	—	(730)	—
Stock-based compensation	(2,810)	(3,712)	(9,849)
Amortization of intangible assets	(4,368)	(4,998)	(850)
Nonrecurring executive severance	—	(867)	—
Non-GAAP operating expenses from continuing operations	102,838	90,155	82,868
Non-GAAP operating income from continuing operations	\$ 114,032	\$ 97,905	\$ 62,725
Income from continuing operations, net of income taxes, as reported	\$ 83,482	\$ 69,495	\$ 59,710
Adjustments, net of tax			
Restructuring charges	157	1,218	3,379
Acquisition-related costs	—	590	—
Stock-based compensation	2,225	2,999	7,963
Amortization of intangible assets	3,459	4,039	687
Nonrecurring executive severance	—	701	—
Non-GAAP income from continuing operations, net of income taxes	\$ 89,323	\$ 79,042	\$ 71,739

This table discusses Non-GAAP results from continuing operations only. See Note 3. *Discontinued Operations* in ITEM 8 "Financial Statements and Supplementary Data" for more information on discontinued operations.

Impact of Inflation

In recent years, inflation has not had a significant impact on our operations. However, we continuously monitor operating price increases, particularly in connection with the supply of component parts used in our manufacturing process. To the extent permitted by competition, we pass increased costs on to our customers by increasing sales prices over time. Sales price increases, however, were not significant in any of the years presented herein.

Liquidity and Capital Resources

LIQUIDITY

We believe that adequate liquidity and cash generation is important to the execution of our strategic initiatives. Our ability to fund our operations, acquisitions, capital expenditures, and product development efforts may depend on our ability to generate cash from operating activities which is subject to future operating performance, as well as general economic, financial, competitive, legislative, regulatory, and other conditions, some of which may be beyond our control. Our primary sources of liquidity are our available cash, investments, cash generated from current operations and availability under our credit facilities noted below.

At December 31, 2015, we had \$170.4 million in cash, cash equivalents, and marketable securities. We believe that adequate liquidity and cash generation will be important to the execution of our strategic initiatives. We believe that our current cash levels and our cash flows from future operations will be adequate to meet anticipated working capital needs, anticipated levels of capital expenditures, and contractual obligations for the next twelve months.

At December 31, 2015, we had \$116.3 million of cash, cash equivalents, and marketable securities held by foreign subsidiaries. Except as required under U.S. tax laws, we do not provide for U.S. taxes on the undistributed earnings of our foreign subsidiaries since we intend to invest such undistributed earnings indefinitely outside of the U.S. If our intent changes or if these

funds are needed for our U.S. operations, we would be required to accrue U.S. taxes on some or all of these undistributed earnings and our effective tax rate would be adversely affected.

On October 12, 2012, we entered into an agreement with Wells Fargo Bank, National Association which provides for a secured revolving credit facility ("Credit Facility") of up to \$50.0 million. As of December 31, 2015, we had \$9.9 million of availability on our Wells Fargo Credit Facility. Borrowings under the Credit Facility are subject to a borrowing base based upon our accounts receivable and inventory and are available for various corporate purposes. The reduction in receivables from our inverter business lowered our availability. The Credit Facility provides us further flexibility for execution of our strategic plans including acquisitions. Refusol initially had two outstanding notes with various banks that provided up to 12.0 million Euros of borrowing, which we assumed in the acquisition. During the year ended December 31, 2014 the last of the revolving lines was repaid and canceled. As of December 31, 2014, there was no outstanding balance on these notes. For more information on these Credit Facilities, see *Note 22. Credit Facilities* in ITEM 8 "Financial Statements and Supplementary Data."

In May 2014, our Board of Directors authorized a program to repurchase up to \$25.0 million of our stock over a twelve-month period. Under this program, during the twelve months ended December 31, 2015, we repurchased and retired 1.4 million shares of our common stock for a total of \$25.0 million. We completed the share repurchase program in the second quarter of 2014. All shares repurchased were executed in the open market and no shares were repurchased from related parties. Repurchased shares were retired and assumed the status of authorized and unissued shares.

In September 2015, our Board of Directors authorized a program to repurchase up to \$150.0 million of our stock over a thirty-month period. Under this program, on November 6, 2015, we entered into an accelerated stock repurchase arrangement with Morgan Stanley & Co. LLC (the "Counterparty") pursuant to a Fixed Dollar Accelerated Share Repurchase Transaction (the "ASR Agreement") to purchase \$50.0 million of shares of our common stock. On November 9, 2015, we advanced \$50.0 million to the Counterparty. This transaction used \$39.6 million and we received 1.4 million shares of our common stock based on then-current market prices of the \$50.0 million advanced, representing 79% of the estimated shares to be repurchased under the ASR Agreement. The initial payment was recorded as a reduction to Stockholders' equity in our Consolidated Balance Sheets as of December 31, 2015. The total number of shares repurchased under the ASR Agreement is based on the average of the daily volume-weighted average prices of the common stock during the term of the Agreement, less a discount. At settlement, if the Counterparty pays less than the original amount advanced, they will be required to reimburse us. If the Counterparty pays more than the original advance, we will chose to reimburse the Counterparty with either cash or additional shares. Final settlement of the ASR Agreement is expected to occur in the second quarter of 2016.

CASH FLOWS

A summary of our cash provided by and used in operating, investing, and financing activities is as follows (in thousands):

	Years Ended December 31,		
	2015	2014	2013
Net cash provided by operating activities	\$ 104,808	\$ 75,586	\$ 35,316
Net cash used in investing activities	(13,265)	(54,996)	(70,926)
Net cash provided by (used in) financing activities	(45,641)	(32,480)	26,313
Effect of currency translation on cash	(1,467)	(950)	858
Increase (decrease) in cash and cash equivalents	44,435	(12,840)	(8,439)
Cash and cash equivalents, beginning of the period	125,285	138,125	146,564
Cash and cash equivalents, end of the period	<u>\$ 169,720</u>	<u>\$ 125,285</u>	<u>\$ 138,125</u>

2015 CASH FLOWS COMPARED TO 2014

Net cash provided by operating activities

Net cash provided by operating activities for the twelve months ended December 31, 2015 was \$104.8 million, compared to \$75.6 million for the same period ended December 31, 2014. The increase of \$29.2 million in net cash flows from operating activities is primarily due to the increase in income from continuing operations, net of income taxes, and decreases in accounts receivable. The overall increase in sales discussed above resulted in higher collections throughout the year.

Net cash used in investing activities

Net cash used in investing activities for the twelve months ended December 31, 2015 was \$13.3 million, a decrease of \$41.7 million from the prior year. We used significantly more cash in 2014 for the purchases of PCM, HiTek, and UltraVolt, which was only slightly offset by our increase in investments in marketable securities in 2015.

Capital expenditures in 2015 were slightly higher than 2014 and are expected to remain at current levels. We expect to fund future capital expenditures with cash generated from operations.

Net cash provided by (used in) financing activities

Net cash used in financing activities in the twelve months ended December 31, 2015 was \$45.6 million, a \$13.2 million increase from the \$32.5 million used in the same period of 2014. This was primarily due to \$50.0 million stock buyback program in 2015. The exercise of stock options provided \$4.5 million of cash in 2015 as compared to \$15.8 million in 2014. Furthermore, the paydown of the Commerzbank and Bayern notes utilized \$16.3 million in cash in 2014, which is reflected in the *Net cash used in financing activities from discontinued operations line* on our Consolidated Statements of Cash Flows.

2014 CASH FLOWS COMPARED TO 2013

Net cash provided by operating activities

Net cash provided by operating activities for the twelve months ended December 31, 2014 was \$75.6 million, compared to \$35.3 million for the same period ended December 31, 2013. The increase of \$40.3 million in net cash flows from operating activities was primarily due to the increase in net income, and decreases in accounts receivable and inventory. The overall increase in sales discussed above resulted in higher collections throughout the year

Net cash flows used in investing activities

Net cash used in investing activities for the twelve months ended December 31, 2014 was \$55.0 million, a decrease of \$15.9 million from the prior year. The decrease is the result of the lower cash used for the acquisitions of PCM, HiTek, and Ultravolt compared to the acquisition of Refusol in 2013. Capital expenditures in 2014 were consistent with 2013.

Net cash flows provided by (used in) financing activities

Net cash used in financing activities in the twelve months ended December 31, 2014 was \$32.5 million, a \$58.8 million change from the cash provided by financing activities of \$26.3 million in the same period of 2013. This was primarily due to the settlement of performance stock units in cash of \$11.2 million in the first quarter of 2014, coupled with the completion of the \$25.0 million stock buyback program. Additionally, the exercise of stock options provided \$15.8 million of cash in 2014 as compared to \$26.3 million in 2013. Furthermore, the paydown of the Commerzbank and Bayern notes utilized \$16.3 million in cash in 2014.

Effect of currency translation on cash

The effect of foreign currency translations on cash changed \$0.5 million to a \$1.5 million negative impact for the year ended December 31, 2015 compared to a \$1.0 million negative impact for the year ended December 31, 2014. The net effect of foreign currency translations on cash changed \$1.8 million to a \$1.0 million negative impact for the year ended December 31, 2014 compared to a \$0.9 million positive impact for the year ended December 31, 2013.

The functional currencies of our worldwide operations primarily include U.S. dollar ("USD"), Japanese Yen ("JPY"), Chinese Yuan Renminbi ("CNY"), New Taiwan Dollar ("TWD"), South Korean Won ("KRW"), British Pound ("GBP"), Swiss Franc ("CHF"), Canadian Dollar ("CAD"), Euro ("EUR"), and Indian Rupee ("INR"). Our purchasing and sales activities are primarily denominated in USD, JPY, CNY, and EUR. The change in these key currency rates during the twelve months ended December 31, 2015, 2014, and 2013 are as follows:

From	To	Twelve Months Ended December 31,		
		2015	2014	2013
CNY	USD	(4.4)%	(2.4)%	2.9 %
EUR	USD	(10.3)%	(12.0)%	4.2 %
JPY	USD	(0.4)%	(12.1)%	(17.6)%
KRW	USD	(6.6)%	(3.9)%	0.7 %
TWD	USD	(3.8)%	(5.3)%	(3.0)%
GBP	USD	(5.5)%	(5.9)%	1.9 %
CAD	USD	(16.1)%	(8.6)%	(6.6)%
CHF	USD	(0.9)%	(10.2)%	2.5 %
INR	USD	(4.61)%	(2.1)%	(11.3)%

Off Balance Sheet Arrangements

We have no off-balance sheet arrangements or variable interest entities.

Contractual Obligations

The following table sets forth our future payments due under contractual obligations as of December 31, 2015 (in thousands):

	Total	Less than 1 year	1 -3 years	4-5 years	More than 5 years
Operating lease obligations	\$ 20,923	\$ 5,898	\$ 5,746	\$ 4,732	\$ 4,547
Purchase obligations	44,176	44,176	—	—	—
Pension Funding Commitment	8,622	958	2,874	1,916	2,874
Total	\$ 73,721	\$ 51,032	\$ 8,620	\$ 6,648	\$ 7,421

As of December 31, 2015, we have recorded liabilities of \$10.4 million related to uncertain tax positions including accrued interest and penalties. Because of the uncertainty of the amounts to be ultimately paid, as well as the timing of such payments, these liabilities are not reflected in the contractual obligations table. Purchase obligations include firm commitments and agreements with various suppliers to ensure the availability of components. For more information see *Note 18. Commitments and Contingencies* in ITEM 8 "Financial Statements and Supplementary Data."

Recent Accounting Pronouncements

From time to time, the Financial Accounting Standards Board ("FASB") or other standards setting bodies issue new accounting pronouncements. Updates to the FASB Accounting Standards Codification ("ASC") are communicated through issuance of an Accounting Standards Update ("ASU"). Unless otherwise discussed, we believe that the impact of recently issued guidance, whether adopted or to be adopted in the future, is not expected to have a material impact on our Consolidated Financial Statements upon adoption.

To understand the impact of recently issued guidance, whether adopted or to be adopted, please review the information provided in *Note 1. Operations and Summary of Significant Accounting Policies and Estimates* in ITEM 8 "Financial Statements and Supplementary Data."

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Market Risk and Risk Management

In the normal course of business, we have exposures to interest rate risk from our investments, credit facility, and foreign exchange rate risk related to our foreign operations and foreign currency transactions.

Interest Rate Risk

Our market risk exposure relates to changes in interest rates in our investment portfolio and credit facility. We generally place our investments with high-credit quality issuers and by policy are averse to principal loss and seek to protect and preserve our invested funds by limiting default risk, market risk, and reinvestment risk.

As of December 31, 2015, our investments consisted primarily of certificates of deposit with maturity of less than 1 years. As a measurement of the sensitivity of our portfolio and assuming that our investment portfolio balances remain constant, a hypothetical decrease of 100 basis points (1%) in interest rates would decrease annual pre-tax earnings by a nominal amount.

We had no debt outstanding as of December 31, 2015. Assuming a full drawdown on all outstanding loan agreements subject to variable interest rates, and holding other variables constant, a hypothetical immediate one percentage point change in interest rates would be expected to have an impact on pre-tax earnings and cash flows of approximately \$0.5 million over the course of 12 months.

Foreign Currency Exchange Rate Risk

We are impacted by changes in foreign currency exchange rates through sales and purchasing transactions when we sell products and purchase materials in currencies different from the currency in which product and manufacturing costs were incurred. The functional currencies of our worldwide facilities primarily include the USD, EUR, KRW, TWD, GBP, and CNY. Our purchasing and sales activities are primarily denominated in the USD, JPY, EUR and CNY. We may be impacted by changes in the relative buying power of our customers, which may impact sales volumes either positively or negatively. As these currencies

fluctuate against each other, and other currencies, we are exposed to foreign currency exchange rate risk on sales, purchasing transactions and labor.

From time to time, we enter into foreign currency exchange rate contracts to hedge against changes in foreign currency exchange rates on assets and liabilities expected to be settled at a future date. Market risk arises from the potential adverse effects on the value of derivative instruments that result from a change in foreign currency exchange rates. In 2011 we entered into foreign currency forward contracts to manage the exchange rate risk associated with intercompany debt denominated in nonfunctional currencies. We minimize our market risk applicable to foreign currency exchange rate contracts by establishing and monitoring parameters that limit the types and degree of our derivative contract instruments. We enter into derivative contract instruments for risk management purposes only. We do not enter into or issue derivatives for trading or speculative purposes.

Our reported financial results of operations, including the reported value of our assets and liabilities, are also impacted by changes in foreign currency exchange rates. Assets and liabilities of substantially all of our subsidiaries outside the U.S. are translated at period end rates of exchange for each reporting period. Operating results and cash flow statements are translated at weighted-average rates of exchange during each reporting period. Although these translation changes have no immediate cash impact, the translation changes may impact future borrowing capacity, and overall value of our net assets.

Currency exchange rates vary daily and often one currency strengthens against the USD while another currency weakens. Because of the complex interrelationship of the worldwide supply chains and distribution channels, it is difficult to quantify the impact of a change in one or more particular exchange rates.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Board of Directors and Shareholders

Advanced Energy Industries, Inc.

We have audited the accompanying consolidated balance sheets of Advanced Energy Industries, Inc. (a Delaware corporation) and subsidiaries (the "Company") as of December 31, 2015 and 2014, and the related consolidated statements of operations, comprehensive income, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2015. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Advanced Energy Industries, Inc. and subsidiaries as of December 31, 2015 and 2014, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2015 in conformity with accounting principles generally accepted in the United States of America.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the Company's internal control over financial reporting as of December 31, 2015, based on criteria established in the 2013 Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO), and our report dated February 25, 2016 expressed an unqualified opinion.

/s/ GRANT THORNTON LLP

Denver, Colorado

February 25, 2016

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Board of Directors and Shareholders

Advanced Energy Industries, Inc.

We have audited the internal control over financial reporting of Advanced Energy Industries, Inc. (a Delaware corporation) and subsidiaries (the “Company”) as of December 31, 2015, based on criteria established in the 2013 *Internal Control-Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The Company’s management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying *Management’s Annual Report on Internal Control over Financial Reporting* appearing under Item 9A of the Company’s Annual Report on Form 10-K (“Management’s Report”). Our responsibility is to express an opinion on the Company’s internal control over financial reporting based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

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

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

In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2015, based on criteria established in the 2013 *Internal Control-Integrated Framework* issued by COSO.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated financial statements of the Company as of and for the year ended December 31, 2015, and our report dated February 25, 2016 expressed an unqualified opinion on those financial statements.

/s/ GRANT THORNTON LLP

Denver, Colorado

February 25, 2016

ADVANCED ENERGY INDUSTRIES, INC.
Consolidated Balance Sheets
(In thousands, except per share amounts)

	December 31,	
	2015	2014
ASSETS		
CURRENT ASSETS:		
Cash and cash equivalents	\$ 158,443	\$ 121,401
Marketable securities	11,986	3,083
Accounts receivable, net of allowances of \$8,739 and \$1,052, respectively	54,959	79,053
Inventories	52,573	46,092
Deferred income tax assets	6,004	5,103
Income taxes receivable	9,040	14,472
Other current assets	7,868	6,146
Current assets from discontinued operations	41,902	101,403
Total current assets	342,775	376,753
Property and equipment, net	9,645	9,759
Deposits and other	1,729	1,666
Goodwill	42,729	43,875
Other intangible assets, net	34,141	40,311
Deferred income tax assets	30,398	35,997
Non-current assets from discontinued operations	1,271	176,207
Total assets	<u>\$ 462,688</u>	<u>\$ 684,568</u>
LIABILITIES AND STOCKHOLDERS' EQUITY		
CURRENT LIABILITIES:		
Accounts payable	\$ 27,246	\$ 24,540
Income taxes payable	13,972	1,495
Accrued payroll and employee benefits	9,175	10,496
Accrued warranty expense	1,633	1,612
Other accrued expenses	12,258	11,790
Customer deposits and other	3,319	4,067
Current liabilities from discontinued operations	36,481	58,568
Total current liabilities	104,084	112,568
Deferred income tax liabilities	1,181	1,439
Uncertain tax positions	2,086	6,484
Long term deferred revenue	45,584	47,246
Other long-term liabilities	18,871	23,192
Non-current liabilities from discontinued operations	27,302	18,674
Total liabilities	199,108	209,603
STOCKHOLDERS' EQUITY:		
Preferred stock, \$0.001 par value, 1,000 shares authorized, none issued and outstanding	—	—
Common stock, \$0.001 par value, 70,000 shares authorized; 39,756 and 40,613 issued and outstanding, respectively	40	41
Additional paid-in capital	195,096	237,752
Retained earnings	67,910	226,396
Accumulated other comprehensive income	534	10,776
Total stockholders' equity	263,580	474,965
Total liabilities and stockholders' equity	<u>\$ 462,688</u>	<u>\$ 684,568</u>

The accompanying notes are an integral part of these Consolidated Financial Statements.

ADVANCED ENERGY INDUSTRIES, INC.
Consolidated Statements of Operations
(In thousands, except per share amounts)

	Years Ended December 31,		
	2015	2014	2013
SALES	\$ 414,811	\$ 367,333	\$ 299,381
COST OF SALES	197,941	179,273	153,788
GROSS PROFIT	216,870	188,060	145,593
OPERATING EXPENSES:			
Research and development	39,551	36,915	35,383
Selling, general, and administrative	66,097	58,549	57,334
Amortization of intangible assets	4,368	4,998	850
Restructuring charges and asset impairment	198	1,507	4,179
Total operating expenses	110,214	101,969	97,746
OPERATING INCOME	106,656	86,091	47,847
Interest (expense) income	(880)	(476)	398
Other (expense) income, net	(334)	390	77
Total other (expense) income	(1,214)	(86)	475
Income from continuing operations before income taxes	105,442	86,005	48,322
Provision (benefit) for income taxes	21,960	16,510	(11,388)
INCOME FROM CONTINUING OPERATIONS, NET OF INCOME TAXES	83,482	69,495	59,710
LOSS FROM DISCONTINUED OPERATIONS, NET OF INCOME TAXES	(241,968)	(22,513)	(27,624)
NET (LOSS) INCOME	\$ (158,486)	\$ 46,982	\$ 32,086
Basic weighted-average common shares outstanding	40,746	40,420	39,597
Diluted weighted-average common shares outstanding	41,077	41,034	40,667
EARNINGS (LOSS) PER SHARE:			
CONTINUING OPERATIONS:			
BASIC EARNINGS PER SHARE	\$ 2.05	\$ 1.72	\$ 1.51
DILUTED EARNINGS PER SHARE	\$ 2.03	\$ 1.69	\$ 1.47
DISCONTINUED OPERATIONS			
BASIC LOSS PER SHARE	\$ (5.94)	\$ (0.56)	\$ (0.70)
DILUTED LOSS PER SHARE	\$ (5.94)	\$ (0.56)	\$ (0.70)
NET INCOME:			
BASIC (LOSS) EARNINGS PER SHARE	\$ (3.89)	\$ 1.16	\$ 0.81
DILUTED (LOSS) EARNINGS PER SHARE	\$ (3.89)	\$ 1.14	\$ 0.79

The accompanying notes are an integral part of these Consolidated Financial Statements.

ADVANCED ENERGY INDUSTRIES, INC.
Consolidated Statements of Comprehensive (Loss) Income
(In thousands)

	Years Ended December 31,		
	2015	2014	2013
Net (loss) income	\$ (158,486)	\$ 46,982	\$ 32,086
Other comprehensive income (loss), net of tax:			
Foreign currency translation adjustment	(10,228)	(23,214)	3,733
Unrealized (losses) gains on marketable securities	(14)	533	(1)
Comprehensive (loss) income	<u>\$ (168,728)</u>	<u>\$ 24,301</u>	<u>\$ 35,818</u>

The accompanying notes are an integral part of these Consolidated Financial Statements.

ADVANCED ENERGY INDUSTRIES, INC.
Consolidated Statements of Stockholders' Equity
(In thousands, except share amounts)

	Common Stock		Additional Paid-in Capital	Retained Earnings	Accumulated Other Comprehensive Income	Total Stockholders' Equity
	Shares	Amount				
Balances, January 1, 2013	37,991	\$ 38	\$ 212,520	\$ 147,328	\$ 29,725	\$ 389,611
Stock issued from equity plans	2,513	3	26,334	—	—	26,337
Stock-based compensation	—	—	13,742	—	—	13,742
Excess tax benefit from stock-based compensation	—	—	(1,046)	—	—	(1,046)
Comprehensive income:						
Equity adjustment from foreign currency translation	—	—	—	—	3,733	3,733
Unrealized holding gains	—	—	—	—	(1)	(1)
Net income	—	—	—	32,086	—	32,086
Total comprehensive income	—	—	—	32,086	3,732	35,818
Balances, December 31, 2013	40,504	\$ 41	\$ 251,550	\$ 179,414	\$ 33,457	\$ 464,462
Stock issued from equity plans	1,485	1	15,830	—	—	15,831
Stock-based compensation	—	—	4,993	—	—	4,993
RSUs settled in cash	—	—	(11,198)	—	—	(11,198)
Excess tax benefit from stock-based compensation	—	—	1,576	—	—	1,576
Stock buyback	(1,376)	(1)	(24,999)	—	—	(25,000)
Comprehensive income:						
Equity adjustment from foreign currency translation	—	—	—	—	(23,214)	(23,214)
Unrealized holding losses	—	—	—	—	533	533
Net income	—	—	—	46,982	—	46,982
Total comprehensive income	—	—	—	46,982	(22,681)	24,301
Balances, December 31, 2014	40,613	\$ 41	\$ 237,752	\$ 226,396	\$ 10,776	\$ 474,965
Stock issued from equity plans	525	—	4,121	—	—	4,121
Stock-based compensation	—	—	3,321	—	—	3,321
Excess tax benefit from stock-based compensation	—	—	(99)	—	—	(99)
Stock buyback	(1,382)	(1)	(49,999)	—	—	(50,000)
Comprehensive income:						
Equity adjustment from foreign currency translation	—	—	—	—	(10,228)	(10,228)
Unrealized holding losses	—	—	—	—	(14)	(14)
Net loss	—	—	—	(158,486)	—	(158,486)
Total comprehensive loss	—	—	—	(158,486)	(10,242)	(168,728)
Balances at December 31, 2015	39,756	\$ 40	\$ 195,096	\$ 67,910	\$ 534	\$ 263,580

The accompanying notes are an integral part of these Consolidated Financial Statements.

ADVANCED ENERGY INDUSTRIES, INC.
Consolidated Statements of Cash Flows
(In thousands)

	Years Ended December 31,		
	2015	2014	2013
CASH FLOWS FROM OPERATING ACTIVITIES:			
Net (loss) income	\$ (158,486)	\$ 46,982	\$ 32,086
Loss from discontinued operations, net of income taxes	(241,968)	(22,513)	(27,624)
Income from continuing operations, net of income taxes	83,482	69,495	59,710
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization	8,832	10,461	6,988
Stock-based compensation expense	2,810	3,712	9,849
Provision for deferred income taxes	3,498	(21,561)	4,829
Non-cash restructuring charges	—	—	2,968
Non-cash reserve for potential bad debts	5,967	—	—
Net (gain) loss on disposal of assets	(1,019)	502	680
Changes in operating assets and liabilities, net of assets acquired:			
Accounts receivable	17,919	(3,835)	(18,084)
Inventories	(6,715)	(7,416)	(2,086)
Other current assets	(2,267)	3,029	5,249
Accounts payable	3,220	1,866	12,694
Other current liabilities and accrued expenses	(9,500)	(5,135)	17,223
Income taxes	17,994	11,085	(26,548)
Net cash provided by operating activities from continuing operations	124,221	62,203	73,472
Net cash provided by (used in) operating activities from discontinued operations	(19,413)	13,383	(38,156)
Net cash provided by operating activities	104,808	75,586	35,316
CASH FLOWS FROM INVESTING ACTIVITIES:			
Purchases of marketable securities	(30,172)	(6,432)	(19,034)
Proceeds from sale of marketable securities	21,095	14,835	33,093
Proceeds from the sale of assets	—	(156)	—
Acquisitions, net of cash acquired	(128)	(57,138)	—
Purchases of property and equipment	(4,014)	(3,449)	(2,588)
Net cash provided by (used in) investing activities from continuing operations	(13,219)	(52,340)	11,471
Net cash used in investing activities from discontinued operations	(46)	(2,656)	(82,397)
Net cash used in investing activities	(13,265)	(54,996)	(70,926)
CASH FLOWS FROM FINANCING ACTIVITIES:			
Settlement of performance stock units	—	(11,198)	—
Purchase and retirement of common stock	(50,000)	(25,000)	—
Proceeds from exercise of stock options	4,476	15,830	26,337
Excess tax from stock-based compensation deduction	(99)	1,576	(1,046)
Other financing activities	(4)	(2)	(1)
Net cash provided by (used in) financing activities from continuing operations	(45,627)	(18,794)	25,290
Net cash provided by (used in) financing activities from discontinued operations	(14)	(13,686)	1,023
Net cash provided by (used in) financing activities	(45,641)	(32,480)	26,313
EFFECT OF CURRENCY TRANSLATION ON CASH	(1,467)	(950)	858
INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS	44,435	(12,840)	(8,439)
CASH AND CASH EQUIVALENTS, beginning of period	125,285	138,125	146,564
CASH AND CASH EQUIVALENTS, end of period	169,720	125,285	138,125
Less cash and cash equivalents from discontinued operations	11,277	3,884	10,657
CASH AND CASH EQUIVALENTS FROM CONTINUING OPERATIONS, end of period	\$ 158,443	\$ 121,401	\$ 127,468
SUPPLEMENTAL DISCLOSURE OF CASH FLOW INFORMATION:			
Cash paid for interest	\$ 361	\$ 234	\$ 63
Cash paid for income taxes	7,161	5,241	13,396
Cash received for refunds of income taxes	5,377	7,261	1,569
Cash held in banks outside the United States	116,259	44,573	27,064

The accompanying notes are an integral part of these Consolidated Financial Statements.

ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

In this Annual Report on Form 10-K, we use the terms “Advanced Energy”, “the Company”, “we”, “us” or “our” to refer to Advanced Energy Industries, Inc. and its subsidiaries.

NOTE 1. OPERATIONS AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES AND ESTIMATES

We design, manufacture, sell and support power conversion and control products that transform power into various usable forms. Our products enable manufacturing processes that use thin film and plasma enhanced chemical and physical processing for various products, industrial electro-thermal applications for material and chemical processes, precision power for analytical instrumentation, as well as grid-tied power conversion. We also supply thermal instrumentation products for advanced temperature control in these markets. Our network of global service support centers provides local repair and field service capability in key regions. As of December 31, 2015, we have discontinued our Inverter production, engineering, and sales product line. As such, all Inverter revenues, costs, assets and liabilities are reported in Discontinued Operations for all periods presented herein and we currently report as a single unit. See *Note 3. Discontinued Operations* for more information.

Principles of Consolidation — Our Consolidated Financial Statements include our accounts and the accounts of our wholly-owned subsidiaries. All intercompany accounts and transactions have been eliminated. Our Consolidated Financial Statements are stated in United States dollars and have been prepared in accordance with accounting principles generally accepted in the United States (“U.S. GAAP”).

Use of Estimates in the Preparation of the Consolidated Financial Statements — The preparation of our Consolidated Financial Statements in conformity with U.S. GAAP requires us to make estimates, assumptions and judgments that affect the reported amounts of assets and liabilities, and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenses during the reporting period. We believe that the significant estimates, assumptions, and judgments when accounting for items and matters such as allowances for doubtful accounts, excess and obsolete inventory, warranty reserves, acquisitions, asset valuations, asset life, depreciation, amortization, recoverability of assets, impairments, deferred revenue, stock option and restricted stock grants, taxes, and other provisions are reasonable, based upon information available at the time they are made. Actual results may differ from these estimates, making it possible that a change in these estimates could occur in the near term.

Foreign Currency Translation — The functional currency of our foreign subsidiaries is their local currency, with the exception of our manufacturing facility in Shenzhen, The People's Republic of China (“PRC”) where the United States dollar is the functional currency. Assets and liabilities of foreign subsidiaries are translated to United States dollars at period-end exchange rates, and our Consolidated Statements of Operations and Cash Flows are translated at average exchange rates during the period. Resulting translation adjustments are recorded as a component of accumulated other comprehensive income.

Transactions denominated in currencies other than the local currency are recorded based on exchange rates at the time such transactions arise. Subsequent changes in exchange rates result in foreign currency transaction gains and losses which are reflected as unrealized (based on period end translation) or realized (upon settlement of the transactions) in other income, net in our Consolidated Statements of Operations.

Fair Value of Financial Instruments — We value our financial assets and liabilities using fair value measurements. Fair value is based on the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The carrying amount of cash and cash equivalents, marketable securities, accounts receivable, other current assets, accounts payable, accrued liabilities, and other current liabilities in our Consolidated Financial Statements approximates fair value because of the short-term nature of the instruments.

Cash and Cash Equivalents — We consider all amounts on deposit with financial institutions and highly liquid investments with an original maturity of three months or less to be cash equivalents. Cash and cash equivalents are highly liquid investments that consist primarily of short-term money market instruments and demand deposits with insignificant interest rate risk and original maturities of three months or less at the time of purchase.

Sometimes we invest excess cash in money market funds not insured by the Federal Deposit Insurance Corporation. We believe that the investments in money market funds are on deposit with credit-worthy financial institutions and that the funds are highly liquid. The investments in money market funds are reported at fair value, with interest income recorded in earnings and are included in “Cash and cash equivalents.” The fair values of our investments in money market funds are based on the quoted market prices.

As of December 31, 2015 we have \$1.3 million of cash included in cash and cash equivalents that is restricted from immediate withdrawal. Of this amount, \$0.7 million is a refund from a European tax authority, restricted until the tax authority

ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

completes its audit procedures, \$0.1 million is restricted for Taiwan Customs Clearance transactions as a guarantee of Customs Duty, adjusted annually based on projected customs clearance transactions, and \$0.5 million is collateral for the US purchasing card program, restricted for the duration of the card program.

Marketable Securities — All of our investments in marketable securities are classified as available-for-sale at the respective balance sheet dates. Marketable securities classified as available-for-sale are recorded at fair value based upon quoted market prices, and any temporary difference between the cost and fair value of the investment is presented as a separate component of accumulated other comprehensive income (loss). We recognize gains and losses on the date our investments mature or are sold and record these gains and losses in other income, net. The specific identification method is used to determine the gains and losses on investments in marketable securities.

Concentrations of Credit Risk — Financial instruments, which potentially subject us to credit risk, include cash and cash equivalents, marketable securities, and trade accounts receivable. To preserve capital and maintain liquidity, we invest with financial institutions we deem to be of high quality and sound financial condition. Our investments are in low-risk instruments and we limit our credit exposure in any one institution or type of investment instrument based upon criteria including creditworthiness.

At December 31, 2015, our accounts receivable from Applied Materials and Lam Research were \$17.1 million, or 31.2% of our total accounts receivable, and \$7.3 million, or 13.3% of our total accounts receivable, respectively. At December 31, 2014, our accounts receivable from Applied Materials and Lam Research were \$20.0 million, or 25.3% of our total accounts receivable, and \$10.6 million, or 13.4% of our total accounts receivable, respectively. No other customer balance exceeded 10% of our total accounts receivable balance at December 31, 2015 or December 31, 2014. We have established an allowance for doubtful accounts based upon factors surrounding the credit risk of specific customers, historical trends, and other information.

Accounts Receivable and Allowance for Doubtful Accounts — Accounts receivable are recorded at net realizable value. We have not historically charged interest on overdue balances, although we do notify our customers that we reserve the right to do so. We maintain a credit approval process and we make significant judgments in connection with assessing our customers' ability to pay at the time of shipment. Despite this assessment, from time to time, our customers are unable to meet their payment obligations. We continuously monitor our customers' credit worthiness and use our judgment in establishing a provision for estimated credit losses based upon our historical experience and any specific customer collection issues that we have identified. While such credit losses have historically been within our expectations and the provisions established, there is no assurance that we will continue to experience the same credit loss rates that we have in the past. A significant change in the liquidity or financial position of our customers could have a material adverse impact on the collectability of accounts receivable and our future operating results.

Changes in allowance for doubtful accounts are summarized as follows (in thousands):

	Years Ended December 31,		
	2015	2014	2013
Balances at beginning of period	\$ 1,052	\$ 1,390	\$ 4,100
Additions - charged to expense	7,837	332	—
Deductions - write-offs, net of recoveries	(150)	(670)	(2,710)
Balances at end of period	<u>\$ 8,739</u>	<u>\$ 1,052</u>	<u>\$ 1,390</u>

During 2015, we recorded an allowance for doubtful accounts related to our inverter business of \$16.3 million. Of this amount, \$6.0 million is related to our inverter service business and is recorded in Selling, general and administrative expense and the remainder is recorded in Income from discontinued operations in our Consolidated Financial Statements. For more information on our discontinued operations, please see *Note 3. Discontinued Operations*.

Inventories — Inventories include costs of materials, direct labor, manufacturing overhead, in-bound freight, and duty. Inventories are valued at the lower of cost (first-in, first-out method) or market and are presented net of reserves for excess and obsolete inventory.

Reserves are provided for excess and obsolete inventory. We regularly review inventory quantities on hand and record a provision to write-down excess and obsolete inventory to its estimated net realizable value, if less than cost, based primarily on our estimated forecast of product demand. Demand for our products can fluctuate significantly. A significant decrease in demand could result in an increase in the charges for excess inventory quantities on hand.

In addition, our industry is subject to technological change, new product development, and product technological obsolescence that could result in an increase in the amount of obsolete inventory quantities on hand. Therefore, any significant

ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

unanticipated changes in demand or technological developments could have a significant impact on the value of our inventory and our reported operating results.

During 2015, we recorded an impairment related to our legacy inverter inventory of \$25.1 million, which is recorded in Income from discontinued operations in our Consolidated Financial Statements. For more information on discontinued operations, please see *Note 3. Discontinued Operations*.

Property and Equipment — Property and equipment is stated at cost or estimated fair value if acquired in a business combination. Depreciation is computed over the estimated useful lives using the straight-line method. Estimated useful lives for financial reporting purposes are as follows: buildings, 20 to 40 years; machinery, equipment, furniture and fixtures and vehicles, three to 10 years; and computer and communication equipment, three years.

Amortization of leasehold improvements and leased equipment is calculated using the straight-line method over the lease term or the estimated useful life of the assets, whichever period is shorter. Additions, improvements, and major renewals are capitalized, while maintenance, repairs, and minor renewals are expensed as incurred. When depreciable assets are retired, or otherwise disposed of, the cost and related accumulated depreciation are removed from the accounts and any related gains or losses are included in other income, net, in our Consolidated Statements of Operations.

Intangible Assets, Goodwill and Other Long-Lived Assets — As a result of our acquisitions, we identified and recorded intangible assets and goodwill. Intangible assets are valued based on estimates of future cash flows and amortized over their estimated useful lives. Goodwill is subject to annual impairment testing, as well as testing upon the occurrence of any event that indicates a potential impairment. Intangible assets and other long-lived assets are subject to an impairment test if there is an indicator of impairment. The carrying value and ultimate realization of these assets is dependent upon our estimates of future earnings and benefits that we expect to generate from their use. If our expectations of future results and cash flows are significantly diminished, intangible assets and goodwill may be impaired and the resulting charge to operations may be material. When we determine that the carrying value of intangibles or other long-lived assets may not be recoverable based upon the existence of one or more indicators of impairment, we use the projected undiscounted cash flow method to determine whether an impairment exists, and then measure the impairment using discounted cash flows.

The estimation of useful lives and expected cash flows requires us to make significant judgments regarding future periods that are subject to some factors outside of our control. Changes in these estimates can result in significant revisions to our carrying value of these assets and may result in material charges to our results of operations.

The annual impairment test for goodwill can be performed using an assessment of qualitative factors in determining if it is more likely than not that goodwill is impaired. If this assessment indicates that it is more likely than not that goodwill is impaired, the next step of impairment testing compares the fair value of a reporting unit to its carrying value. Goodwill would be impaired if the resulting implied fair value of goodwill was less than the recorded carrying value of the goodwill.

In June 2015, the Company completed its six-month long process of seeking strategic alternatives for its inverter business and no satisfactory offers were received for all or a part of the inverter business. On June 29, 2015, we announced our decision to wind down our solar inverter business to focus solely on our Precision Power business. The result of this assessment was the recording of various asset impairments including Goodwill and Intangibles which is reflected in the "Loss from discontinued operations, net of income taxes" in our Consolidated Statements of Operations, as we have discontinued our inverter product line as of December 31, 2015. See *Note 3. Discontinued Operations*.

Revenue Recognition — We recognize revenue from product sales upon transfer of title and risk of loss to our customers provided that there is evidence of an arrangement, the sales price is fixed or determinable, and the collection of the related receivable is reasonably assured. In most transactions, we have no obligations to our customers after the date products are shipped, other than pursuant to warranty obligations. Shipping and handling fees billed to customers, if any, are recognized as revenue. The related shipping and handling costs are recognized in cost of sales.

We maintain a worldwide support organization in eight countries, including the United States, the PRC, Japan, Korea, Taiwan, Canada, Germany, and Great Britain. Support services include warranty and non-warranty repair services, upgrades, and refurbishments on the products we sell. Revenue from repairs and replacements, that are non-warranty in nature, are recognized as the work is performed on a time and materials basis. Repairs that are covered under our standard warranty do not generate revenue.

As part of our ongoing service business, we also provide our customers with extended warranty and preventive maintenance service contract options on the products we sell. Any up-front fees received for extended warranties or maintenance plans are deferred and recognized ratably over the service periods, as defined in the agreements. We deferred revenue related to extended warranties totaling \$45.6 million as of December 31, 2015 and \$47.2 million as of December 31, 2014, including the current portion.

ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Based on the credit worthiness of certain customers, we may require payment prior to the manufacture or shipment of products purchased by these customers. Cash payments received prior to shipment are recorded as customer deposits, a current liability, and then recognized as revenue when appropriate based upon the revenue recognition criteria discussed earlier in this section. As of December 31, 2015 and December 31, 2014 the total amount of customer deposits was \$3.3 million and \$4.1 million, respectively. We do not offer price protection to customers, or allow returns, unless covered by our normal policy for repair of defective products.

We occasionally agree to make payments to certain customers in order to participate in anticipated sales activity. Payments made to customers are accounted for as a reduction of revenue unless they are made in exchange for identifiable goods or services with fair values that can be reasonably estimated. These reductions in revenues are recognized immediately to the extent that the payments cannot be attributed to anticipated future sales, and are recognized in future periods to the extent that the payments relate to future sales, based on the specific facts and circumstances underlying each payment.

Taxes Collected from Customers — In the course of doing business we collect various taxes from customers including, but not limited to, sales taxes and value added taxes. It is our policy to record revenue net of taxes collected from customers in our Consolidated Statements of Operations.

Shipping and Handling Costs — Amounts billed to customers for shipping and handling are recorded in sales. Shipping and handling costs incurred by us for the delivery of products to customers are included in cost of sales.

Advertising Costs — Advertising costs are expensed when incurred and are included in selling, general, and administrative expenses.

Research and Development Expenses — Costs incurred to advance, test or otherwise modify our proprietary technology or develop new technologies are considered research and development costs and are expensed when incurred. These costs are primarily comprised of costs associated with the operation of our laboratories and research facilities, including internal labor, materials, and overhead.

Warranty Costs — We provide for the estimated costs to fulfill customer warranty obligations upon the recognition of the related revenue. We offer warranty coverage for a majority of our Precision Power products for periods typically ranging from 12 to 24 months after shipment. We warranted our inverter products for five to ten years and provided the option to purchase additional warranty coverage up to 20 years. The warranty expense accrued related to our standard inverter product warranties is now considered part of our discontinued operations and is recorded as such on our Consolidated Balance Sheets. See *Note 3. Discontinued Operations* for more information. See *Note 13. Warranties* for more information on our warranties from continuing operations. We estimate the anticipated costs of repairing our products under such warranties based on the historical costs of the repairs. The assumptions we use to estimate warranty accruals are reevaluated periodically, in light of actual experience, and when appropriate, the accruals are adjusted. Should product failure rates differ from our estimates, actual costs could vary significantly from our expectations.

Stock-Based Compensation — Accounting for stock-based compensation requires the measurement and recognition of compensation expense for all share-based payment awards made to employees and directors based on estimated fair values. We have estimated the fair value of all stock options and awards on the date of grant using the Black-Scholes-Merton pricing model, which is affected by our stock price, as well as assumptions regarding a number of complex and subjective variables. These variables include our expected stock price volatility over the term of the awards, actual and projected employee option exercise behaviors, risk free interest rates and expected dividends. We also estimate forfeitures at the time of grant and revise those estimates in subsequent periods if actual forfeitures differ from our estimates. Our expected volatility assumption is based on the historical daily closing price of our stock over a period equivalent to the expected life of the options. Our 2012-2014 Long-term Incentive Plan included a cash settlement option for awards of restricted stock units.

Income Taxes — We follow the liability method of accounting for income taxes under which deferred tax assets and liabilities are recognized for future tax consequences. A deferred tax asset or liability is computed for both the expected future impact of differences between the financial statement and tax basis of assets and liabilities and for the expected future tax benefit to be derived from tax loss and tax credit carry-forwards. Tax rate changes are reflected in the period such changes are enacted.

We assess the recoverability of our net deferred tax assets and the need for a valuation allowance on a quarterly basis. Our assessment includes a number of factors including historical results and taxable income projections for each jurisdiction. The ultimate realization of deferred income tax assets is dependent on the generation of taxable income in appropriate jurisdictions during the periods in which those temporary differences are deductible. We consider the scheduled reversal of deferred income tax liabilities, projected future taxable income, and tax planning strategies in determining the amount of the valuation allowance. Based on the level of historical taxable income and projections for future taxable income over the periods in which the deferred income tax assets are deductible, we determine if we will realize the benefits of these deductible differences.

ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Accounting for income taxes requires a two-step approach to recognize and measure uncertain tax positions. In general, we are subject to regular examination of our income tax returns by the Internal Revenue Service and other tax authorities. The first step is to evaluate the tax position for recognition by determining, if based on the technical merits, it is more likely than not that the position will be sustained upon audit, including resolutions of related appeals or litigation processes, if any. The second step is to measure the tax benefit as the largest amount that is more than 50% likely of being realized upon ultimate settlement. We regularly assess the likelihood of favorable or unfavorable outcomes resulting from these examinations to determine the adequacy of our provision for income taxes. This evaluation is based on factors including, but not limited to, changes in facts or circumstances, changes in tax law, effectively settled issues under audit, and new audit activity.

Commitments and Contingencies — From time to time we are involved in disputes and legal actions arising in the normal course of our business. While we currently believe that the amount of any ultimate loss would not be material to our financial position, the outcome of these actions is inherently difficult to predict. In the event of an adverse outcome, the ultimate loss could have a material adverse effect on our financial position or reported results of operations in a particular period. An unfavorable decision, particularly in patent litigation, could require material changes in production processes and products or result in our inability to ship products or components found to have violated third-party patent rights. We accrue loss contingencies when it is probable that a loss has occurred or will occur and the amount of the loss can be reasonably estimated. Our estimates of probability of losses are subjective, involve significant judgment and uncertainties, and are based on the best information we have at any given point in time. Resolution of these uncertainties in a manner inconsistent with our expectations could have a significant impact on our results of operations and financial condition.

NEW ACCOUNTING STANDARDS

From time to time, the Financial Accounting Standards Board ("FASB") or other standards setting bodies issue new accounting pronouncements. Updates to the FASB Accounting Standards Codification ("ASC") are communicated through issuance of an Accounting Standards Update ("ASU"). Unless otherwise discussed, we believe that the impact of recently issued guidance, whether adopted or to be adopted in the future, is not expected to have a material impact on the Consolidated Financial Statements upon adoption.

In April 2014, the FASB issued guidance redefining discontinued operations and requiring only those disposals of components of an entity, including classifications as held for sale, that represent a strategic shift that has, or will have, a major effect on an entity's operations and financial results to be reported as discontinued operations. In addition, the new standard expands the disclosure requirements of discontinued operations. As of December 31, 2015, we have discontinued our inverter engineering, sales, and production and have applied this guidance to our Consolidated Financial Statements herein.

In May 2014, the FASB issued guidance on revenue from contracts with customers, which implements a five step process for how an entity should recognize revenue in order to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. This guidance will be effective for fiscal periods beginning after December 15, 2017 and for the interim periods within that year. Early application is not permitted. The standard permits the use of either the retrospective or cumulative effect transition method. We are currently evaluating the impact that the adoption will have on our Consolidated Financial Statements and related disclosures. We have not yet selected a transition method nor have we determined the effect of the standard on our ongoing reporting.

In November 2015, the FASB issued guidance requiring entities to present deferred tax assets and liabilities as noncurrent in a classified balance sheet instead of separating into current and noncurrent amounts. This guidance is effective for financial statements issued for annual periods beginning after December 15, 2016, and interim periods within those annual periods, on a prospective or retrospective basis. Early adoption is permitted for all companies in any interim or annual period. Advanced Energy has not determined in what period it will adopt or what adoption method it will use and is currently assessing the impact that this guidance may have on its Consolidated Financial Statements.

NOTE 2. BUSINESS ACQUISITIONS

Refusol Holding

On April 8, 2013, we acquired all the outstanding shares of Refusol Holding GmbH pursuant to a Sale and Purchase Agreement (the "SPA") between AEI Holdings, GmbH (formerly Blitz S13-103, GmbH) ("AEI Holdings"), an indirect wholly-owned subsidiary of Advanced Energy Industries, Inc.; Jolaos Verwaltungs GmbH ("Jolaos") and Prettl Beteiligungs Holding GmbH. Refusol Holding GmbH ("Refusol Holding") owns all of the shares of Refusol GmbH and its subsidiaries (collectively and together with Refusol Holding, "Refusol"). Refusol developed, manufactured, distributed and serviced PV inverters. The acquisition of Refusol is intended to broaden our portfolio and extend our geographic distribution.

Consideration paid totaled approximately \$87.2 million, consisting of a cash payment of \$75.4 million, net of cash acquired and a working capital reduction and assumption of debt totaling \$11.9 million. The agreement called for additional cash consideration

ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

if certain stretch financial targets were met by our Inverters segment and Refusol, on a combined basis, at the end of the twelve (12) calendar months following April 1, 2013. These financial targets were not met.

The components of the fair value of the total consideration transferred for the Refusol acquisition are as follows (in thousands):

Cash paid to owners	\$	79,550
Debt assumed		11,873
Working capital adjustment		(2,340)
Cash acquired		(1,836)
Total fair value of consideration transferred	<u>\$</u>	<u>87,247</u>

The following table summarizes estimated fair values of the assets acquired and liabilities assumed as of April 8, 2013 (in thousands):

Accounts receivable	\$	8,868
Inventories		13,610
Other current assets		6,769
Property and equipment		4,708
Other long-term assets		130
Deferred tax assets		(3,156)
Current liabilities		(33,397)
Long-term liabilities		(41,646)
		<u>(44,114)</u>
Amortizable intangible assets:		
Trademarks		1,300
Technology		5,700
Customer relationships		3,500
Total amortizable intangible assets		<u>10,500</u>
Total identifiable net assets		(33,614)
Goodwill		120,861
Total fair value of consideration transferred	<u>\$</u>	<u>87,247</u>

A summary of the intangible assets acquired, amortization method and estimated useful lives as of April 8, 2013 follows (in thousands, except useful life):

	<u>Amount</u>	<u>Amortization Method</u>	<u>Useful Life</u>
Trademarks	\$ 1,300	Straight-line	1.5
Technology	5,700	Straight-line	5
Customer relationships	3,500	Straight-line	5
	<u>\$ 10,500</u>		

During the first two quarters of 2014, we finalized the purchase price accounting of Refusol and made adjustments to Goodwill of \$29.4 million, primarily consisting of adjustments to the opening balance of accrued warranty and other accrued expenses. All assets and liabilities are recorded in the functional currency of the entity and are subject to changes due to translation at each balance sheet date. The goodwill associated with the acquisition was fully impaired in 2015 as part of our inverter wind down. See *Note 3. Discontinued Operations* for more information.

Power Control Module

On January 27, 2014, we acquired the intellectual property related to AEG Power Solutions' Power Control Modules ("PCM"). PCM is comprised of the Thyro-Family of products and accessories and serves numerous power control applications in different industries ranging from materials thermal processing through chemical processing, glass manufacturing and numerous

ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

other general industrial power applications. This acquisition is expected to broaden our product offerings and will be added to our precision power portfolio. We paid total consideration of \$31.5 million including contingent consideration, of which \$15.0 million is included in Intangibles, \$16.4 million in Goodwill, and \$0.1 million in Property, plant, and equipment. Included in Goodwill is \$1.4 million of contingent consideration that was paid in the first quarter of 2015. All assets and liabilities are recorded in the functional currency of the entity and are subject to changes due to translation at each balance sheet date. The goodwill associated with the acquisition is the result of expected synergies and expansion of our product offerings into new markets.

HiTek Power Group

On April 12, 2014, Advanced Energy acquired all outstanding common stock of HiTek Power Group ("HiTek"), a privately-held provider of high voltage power solutions. Based in the United Kingdom, HiTek offers a comprehensive portfolio of high voltage and custom built power conversion products, ranging from 100V to 500kV, designed to meet the demanding requirements of OEMs worldwide. These products target applications including semiconductor wafer processing and metrology, scientific instrumentation, mass spectrometry, industrial printing, and analytical x-ray systems for industrial and analytical applications. HiTek's unique product architecture, encapsulation technology and control algorithms, combined with deep knowledge of its customer-specific applications, have made it a leading provider of critical, high-end, high voltage power solutions. We acquired HiTek to expand our product offerings in our precision power portfolio.

The components of the fair value of the total consideration transferred for the HiTek acquisition are as follows (in thousands):

Cash paid to owners	\$	3,525
Cash acquired		(6,889)
Total fair value of consideration received	\$	<u>(3,364)</u>

The following table summarizes estimated fair values of the assets acquired and liabilities assumed as of April 12, 2014 (in thousands):

Accounts receivable	\$	2,867
Inventories		4,980
Other current assets		415
Property and equipment		1,291
Deferred taxes on intangible values		2,020
Current liabilities		(3,836)
Long-term liabilities		<u>(22,725)</u>
Total tangible assets, net		(14,988)
Amortizable intangible assets:		
Tradename		336
Technology		4,029
Customer relationships		8,225
Total amortizable intangible assets		<u>12,590</u>
Total identifiable net assets		(2,398)
Gain on bargain purchase *		(966)
Total fair value of consideration received	\$	<u>(3,364)</u>

*A gain (bargain purchase gain) is recorded when the fair value of assets acquired exceeds the fair value of the liabilities assumed and consideration paid. This gain is recorded in Other income on our Consolidated Statements of Operations.

ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

A summary of the intangible assets acquired, amortization method and estimated useful lives as of April 12, 2014 follows (in thousands, except useful life):

	<u>Amount</u>	<u>Amortization Method</u>	<u>Useful Life</u>
Technology	\$ 4,029	Straight-line	10
Tradename	336	Straight-line	2.5
Customer relationships	8,225	Straight-line	15
	<u>\$ 12,590</u>		

All assets and liabilities are recorded in the functional currency of the entity and are subject to changes due to translation at each balance sheet date.

UltraVolt, Inc.

On August 4, 2014, Advanced Energy acquired all outstanding common stock of UltraVolt, Inc. ("UltraVolt"), a privately-held provider of high voltage power solutions. Based in Ronkonkoma, New York, UltraVolt offers a comprehensive portfolio of high voltage power supplies and modules ranging from benchtop and rack mount systems to microsize printed circuit board mount modules. Its standard DC-to-DC product line consists of over 1,500 models, which can be combined with accessories and options to create thousands of product configurations. Serving over 100 markets, UltraVolt's fixed-frequency, high-voltage topology provides wide input and output operating ranges while retaining excellent stability and efficiencies. We acquired UltraVolt to expand our high voltage product offerings in our precision power portfolio.

The components of the fair value of the total consideration transferred for the UltraVolt acquisition are as follows (in thousands):

Purchase price	\$ 30,200
Net working capital adjustment	1,073
Total fair value of consideration transferred	<u>\$ 31,273</u>

The following table summarizes estimated fair values of the assets acquired and liabilities assumed as of August 4, 2014 (in thousands):

Cash	\$ 758
Accounts receivable	1,694
Inventories	2,599
Other current assets	264
Property and equipment	424
Long-term assets	711
Deferred taxes on intangible values	(2,087)
Current liabilities	(1,053)
Total tangible assets, net	<u>3,310</u>
Amortizable intangible assets:	
Technology	2,100
Tradename	200
Customer relationships	8,600
Total amortizable intangible assets	<u>10,900</u>
Total identifiable net assets	14,210
Goodwill	17,063
Total fair value of consideration transferred	<u>\$ 31,273</u>

ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

A summary of the intangible assets acquired, amortization method and estimated useful lives as of August 4, 2014 follows (in thousands, except useful life):

	Amount	Amortization Method	Useful Life
Technology	\$ 2,100	Straight-line	10
Tradenname	200	Straight-line	2.5
Customer relationships	8,600	Straight-line	12
	<u>\$ 10,900</u>		

The goodwill associated with the acquisition is the result of expected synergies and expansion of the technology into additional markets that we already serve.

NOTE 3. DISCONTINUED OPERATIONS

In June 2015, the Company completed its six-month long process of seeking strategic alternatives for its inverter business and no satisfactory offers were received for all or a part of the inverter business. On June 29, 2015 we announced our decision to wind-down our inverter product business to focus solely on our core Precision Power business. This constituted a strategic shift as inverter engineering, manufacturing and sales constituted a separate reporting segment for the Company. The wind down was completed in December 2015 and as such inverter engineering, manufacturing and sales has been reflected as "Loss from discontinued operations, net of income taxes" on our Consolidated Statements of Operations for all periods presented herein.

The sale of extended inverter warranties are reflected in deferred revenue on our Consolidated Balance Sheets and will be reflected in Continuing operations in future periods as the deferred revenue is earned and the associated services are rendered.

The significant items included in "Loss from discontinued operations, net of income taxes" are as follows:

	Year Ended December 31,		
	2015	2014	2013
Sales	\$ 95,856	\$ 215,763	\$ 247,623
Cost of sales	139,045	209,795	183,080
Total operating expenses (including restructuring)	232,262	51,637	97,767
Operating loss from discontinued operations	(275,451)	(45,669)	(33,224)
Other expense	(55)	(658)	(814)
Loss from discontinued operations before income taxes	(275,506)	(46,327)	(34,038)
Provision for income taxes	(33,538)	(23,814)	(6,414)
Loss from discontinued operations, net of income taxes	<u>\$ (241,968)</u>	<u>\$ (22,513)</u>	<u>\$ (27,624)</u>

ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Assets and Liabilities of discontinued operations within the Consolidated Balance Sheets are comprised of the following:

	December 31,	
	2015	2014
Cash and cash equivalents	\$ 11,277	\$ 3,884
Account and other receivables, net*	16,331	39,620
Inventories	—	48,990
Deferred income tax assets	14,294	8,909
Current assets of discontinued operations	<u>\$ 41,902</u>	<u>\$ 101,403</u>
Property, plant and equipment, net	—	19,217
Intangibles and other assets, net	1,271	156,990
Non-current assets of discontinued operations	<u>\$ 1,271</u>	<u>\$ 176,207</u>
Accounts payable and other accrued expenses	19,261	41,985
Accrued warranty*	11,852	16,157
Accrued restructuring*	5,368	426
Current liabilities of discontinued operations	<u>\$ 36,481</u>	<u>\$ 58,568</u>
Accrued warranty*	27,124	18,352
Other liabilities	178	322
Non-current liabilities of discontinued operations	<u>\$ 27,302</u>	<u>\$ 18,674</u>

*Any changes in the estimates which underlie these accruals and reserves will be reflected in “Loss from discontinued operations, net of tax” in future periods.

NOTE 4. INCOME TAXES

The geographic distribution of pretax income from continuing operations is as follows (in thousands):

	Years Ended December 31,		
	2015	2014	2013
Domestic	\$ 13,237	\$ 16,735	\$ 28,459
Foreign	92,205	69,270	19,863
	<u>\$ 105,442</u>	<u>\$ 86,005</u>	<u>\$ 48,322</u>

The provision (benefit) for income taxes from continuing operations is summarized as follows (in thousands):

	Years Ended December 31,		
	2015	2014	2013
Current:			
Federal	\$ 5,823	\$ 6,436	\$ (8,631)
State	335	481	(769)
Foreign	5,950	4,312	3,850
Total current provision (benefit)	<u>\$ 12,108</u>	<u>\$ 11,229</u>	<u>\$ (5,550)</u>
Deferred:			
Federal	\$ 569	\$ 832	\$ (4,351)
State	870	587	(635)
Foreign	8,413	3,862	(852)
Total deferred provision (benefit)	<u>\$ 9,852</u>	<u>\$ 5,281</u>	<u>\$ (5,838)</u>
Total provision (benefit) for income taxes	<u>\$ 21,960</u>	<u>\$ 16,510</u>	<u>\$ (11,388)</u>

ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The following reconciles our effective tax rate on income from continuing operations to the federal statutory rate of 35% (in thousands):

	Years Ended December 31,		
	2015	2014	2013
Income taxes per federal statutory rate	\$ 37,498	\$ 29,786	\$ 16,747
State income taxes, net of federal deduction	1,204	135	(1,329)
Change in valuation allowance	6,503	12	(393)
Stock based compensation	(166)	(112)	(296)
Executive compensation	—	751	56
Domestic production activity benefit	—	(124)	(135)
Tax effect of foreign operations	(22,495)	(12,081)	(22,268)
Tax credits	(969)	(2,208)	(3,551)
Other permanent items, net	385	351	(219)
	<u>\$ 21,960</u>	<u>\$ 16,510</u>	<u>\$ (11,388)</u>

Deferred tax assets and liabilities are recognized for the future tax consequences of differences between the carrying amounts of assets and liabilities and their respective tax bases using enacted tax rates in effect for the year in which the differences are expected to be reversed. Significant deferred tax assets and liabilities consist of the following (in thousands):

	Years Ended December 31,	
	2015	2014
Deferred tax assets		
Stock based compensation	\$ 3,716	\$ 4,029
Net operating loss and tax credit carryforwards	49,374	19,434
Pension obligation	3,662	4,242
Excess and obsolete inventory	3,692	3,308
Deferred revenue	12,423	13,271
Vacation accrual	750	939
Restructuring	83	115
Bad debt reserve	114	341
Employee bonuses and commissions	1,191	128
Unrealized gain/loss	1,506	1,020
Warranty reserve	91	170
Other	899	369
Deferred tax assets	77,501	47,366
Less: Valuation allowance	(37,208)	(2,940)
Net deferred tax assets	<u>40,293</u>	<u>44,426</u>
Deferred tax liabilities		
Depreciation and amortization	3,875	4,666
Foreign other	1,050	555
Other	260	153
Deferred tax liabilities	<u>5,185</u>	<u>5,374</u>
Net deferred tax assets (liabilities)	<u>\$ 35,108</u>	<u>\$ 39,052</u>

As of December 31, 2015, the Company has recorded a valuation allowance on its U.S. domestic deferred tax assets of approximately \$1.1 million related to state tax losses. The remaining valuation allowance on deferred tax assets approximates \$36.1 million and relates to foreign losses that are both operating and capital in nature. The foreign operating losses are attributable to Germany, the UK, Japan, and India. As of December 31, 2015, there is not sufficient positive evidence to conclude that such

ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

losses will be recognized. The foreign capital losses are attributable to the UK and may carry forward to offset future capital gains only. The Company has determined that the future utilization of these capital losses is not more likely than not.

As of December 31, 2015, the Company had federal, foreign, and state tax loss carryforwards of approximately \$47.4 million, \$132.8 million, and \$75.2 million, respectively. The federal and state tax loss carryforwards are subject to various limitations under Section 382 of the Internal Revenue Code and applicable state laws. The US federal tax losses will expire from 2028 to 2035. The US state losses will expire from 2018 to 2035. The foreign tax losses consist of approximately \$101.4 million of German losses, \$23.8 million of UK losses, \$4.5 million of Japan losses, and \$3.1 million of India losses, and, as noted above, are currently subject to a full valuation allowance. The Germany, UK, and India losses have no expiration date and the Japan losses will begin to expire in 2021.

As of December 31, 2015, the Company has not provided for U.S. income tax or foreign withholding taxes on approximately \$255.0 million of undistributed foreign earning because such earnings are considered to be permanently reinvested. The Company believes it is not practicable to calculate the deferred taxes associated with these earnings because of the variability of multiple factors that would need to be assessed at the time of any assumed repatriation. The Company believes, however, that foreign tax credits may be available to reduce federal income taxes in the event of distribution.

We account for uncertain tax positions by applying a minimum recognition threshold to tax positions before recognizing these positions in the financial statements. The reconciliation of our total gross unrecognized tax benefits is as follows (in thousands):

	Years Ended December 31,		
	2015	2014	2013
Balance at beginning of period	\$ 8,001	\$ 5,523	\$ 12,810
Additions based on tax positions taken during a prior period	433	136	1,006
Additions based on tax positions taken during the current period	3,413	3,757	1,495
Reductions related to a lapse of applicable statute of limitations	(1,798)	(1,415)	(9,788)
Balance at end of period	<u>\$ 10,049</u>	<u>\$ 8,001</u>	<u>\$ 5,523</u>

The full \$10.0 million of unrecognized tax benefits, if recognized, will impact the Company's effective tax rate. In accordance with our accounting policy, we recognize accrued interest and penalties related to unrecognized tax benefits as a component of tax expense. We had an immaterial amount of accrued interest and penalties at December 31, 2015 and 2014. We do not anticipate a material change to the amount of unrecognized tax positions within the next 12 months.

The Company is currently under examination by the Internal Revenue Service ("IRS") for the 2012 through 2014 tax years. As of December 31, 2015, the IRS has issued no notices of proposed assessment. The Company regularly assesses the likelihood of an adverse outcome resulting from such examinations. As of December 31, 2015, the Company believes the resolution of the current IRS audit will not have a material adverse impact on the Company's financial statements. With few exceptions, the Company is no longer subject to U.S. federal, state and local, or non-U.S. income tax examinations by tax authorities for years before 2012.

NOTE 5. EARNINGS PER SHARE

Basic earnings per share ("EPS") is computed by dividing income available to common stockholders by the weighted-average number of common shares outstanding during the period. The computation of diluted EPS is similar to the computation of basic EPS except that the numerator is increased to exclude charges that would not have been incurred, and the denominator is increased to include the number of additional common shares that would have been outstanding (using the if-converted and treasury stock methods), if securities containing potentially dilutive common shares (stock options and restricted stock units) had been converted to common shares, and if such assumed conversion is dilutive.

ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The following is a reconciliation of the weighted-average shares outstanding used in the calculation of basic and diluted earnings per share for the years ended December 31, 2015, 2014, and 2013 (in thousands, except per share data):

	Years Ended December 31,		
	2015	2014	2013
Income from continuing operations, net of income taxes	\$ 83,482	\$ 69,495	\$ 59,710
Basic weighted-average common shares outstanding	40,746	40,420	39,597
Assumed exercise of dilutive stock options and restricted stock units	331	614	1,070
Diluted weighted-average common shares outstanding	41,077	41,034	40,667
Continuing operations:			
Basic earnings per share	\$ 2.05	\$ 1.72	\$ 1.51
Diluted earnings per share	\$ 2.03	\$ 1.69	\$ 1.47

The following stock options and restricted units were excluded in the computation of diluted earnings per share because they were anti-dilutive (in thousands):

	Years Ended December 31,		
	2015	2014	2013
Stock options	155	91	413
Restricted stock units	1	—	—

Stock Buyback

In May 2014, our Board of Directors authorized a program to repurchase up to \$25.0 million of our stock over a twelve-month period. Under this program, during the twelve months ended December 31, 2015, we repurchased and retired 1.4 million shares of our common stock for a total of \$25.0 million. We completed the share repurchase program in the second quarter of 2014.

In September 2015, our Board of Directors authorized a program to repurchase up to \$150.0 million of our stock over a thirty-month period. Under this program, on November 6, 2015, we entered into an accelerated stock repurchase arrangement with Morgan Stanley & Co. LLC (the “Counterparty”) pursuant to a Fixed Dollar Accelerated Share Repurchase Transaction (the “ASR Agreement”) to purchase \$50.0 million of shares of our common stock. On November 9, 2015, we advanced \$50.0 million to the Counterparty. This transaction used \$39.6 million and we received 1.4 million shares of our common stock based on then-current market prices of the \$50.0 million advanced, representing 79% of the estimated shares to be repurchased under the ASR Agreement. The initial payment was recorded as a reduction to Stockholders' equity in our Consolidated Balance Sheets as of December 31, 2015. The total number of shares repurchased under the ASR Agreement is based on the average of the daily volume-weighted average prices of the common stock during the term of the Agreement, less a discount. At settlement, if the Counterparty pays less than the original amount advanced, they will be required to reimburse us. If the Counterparty pays more than the original advance, we will chose to reimburse the Counterparty with either cash or additional shares. Final settlement of the ASR Agreement is expected to occur in the second quarter of 2016.

All shares repurchased were executed in the open market and no shares were repurchased from related parties. Repurchased shares were retired and assumed the status of authorized and unissued shares.

NOTE 6. MARKETABLE SECURITIES

Our investments with original maturities of more than three months at time of purchase are considered marketable securities available for sale.

Our marketable securities consist of commercial paper and certificates of deposit as follows (in thousands):

	December 31,			
	2015		2014	
	Cost	Fair Value	Cost	Fair Value
Commercial paper	\$ 4,989	\$ 4,995	\$ —	\$ —
Certificates of deposit	7,008	6,991	3,083	3,083
Total marketable securities	\$ 11,997	\$ 11,986	\$ 3,083	\$ 3,083

ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The maturities of our marketable securities available for sale as of December 31, 2015 are as follows:

	Earliest		Latest
Commercial paper	1/21/2016	to	4/28/2016
Certificates of deposit	3/1/2016	to	9/18/2017

The value and liquidity of the marketable securities we hold are affected by market conditions, as well as the ability of the issuers of such securities to make principal and interest payments when due, and the functioning of the markets in which these securities are traded. Our current investments in marketable securities are expected to be liquidated during the next twelve months.

As of December 31, 2015, we do not believe any of the underlying issuers of our marketable securities are at risk of default.

NOTE 7. DERIVATIVE FINANCIAL INSTRUMENTS

We are impacted by changes in foreign currency exchange rates. We manage these risks through the use of derivative financial instruments, primarily forward contracts with banks. During the years ended December 31, 2015, 2014, and 2013 we entered into foreign currency exchange forward contracts to manage the exchange rate risk associated with intercompany debt denominated in nonfunctional currencies. These derivative instruments are not designated as hedges; however, they do offset the fluctuations of our intercompany debt due to foreign exchange rate changes. These forward contracts are typically for one month periods. At December 31, 2015, 2014, and 2013 we had EUR forward contracts. At December 31, 2013 we also had CAD and CHF forward contracts.

The notional amount of foreign currency exchange contracts at December 31, 2015, 2014, and 2013 was \$37.2 million, \$14.9 million, and \$25.0 million, respectively, and the fair value of these contracts was not significant at December 31, 2015, 2014, and 2013. During the years ended December 31, 2015, 2014, and 2013, we recognized a gain of \$1.9 million, a gain of \$0.1 million and a loss of \$0.9 million, respectively, on our foreign currency exchange contracts. These gains and losses were offset by corresponding gains and losses on the related intercompany debt and both are included as a component of other income, net, in our Consolidated Statements of Operations.

NOTE 8. ASSETS AND LIABILITIES MEASURED AT FAIR VALUE

Fair Value Hierarchy

Financial assets and liabilities recorded at fair value in our Consolidated Balance Sheets are categorized based upon a fair value hierarchy established by U.S. GAAP, which prioritizes the inputs used to measure fair value into the following levels:

Level 1:	Quoted market prices in active markets for identical assets or liabilities at the measurement date.
Level 2:	Quoted prices for similar assets or liabilities in active markets, quoted prices for identical or similar assets and liabilities in markets that are not active, or other inputs that are observable and can be corroborated by observable market data.
Level 3:	Inputs reflect management’s best estimates and assumptions of what market participants would use in pricing the asset or liability at the measurement date. The inputs are unobservable in the market and significant to the valuation of the instruments.

A financial instrument’s categorization within the valuation hierarchy is based upon the lowest level of input that is significant to the fair value measurement.

ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Assets and Liabilities Measured at Fair Value on a Recurring Basis

The following tables present information about our financial assets measured at fair value, on a recurring basis, as of December 31, 2015, and December 31, 2014. The fair value hierarchy of the valuation techniques utilized to determine such fair value, is as follows (in thousands):

December 31, 2015	Level 1	Level 2	Level 3	Total
Commercial paper	\$ —	\$ 4,995	\$ —	\$ 4,995
Certificates of deposit	—	6,991	—	6,991
Total marketable securities	<u>\$ —</u>	<u>\$ 11,986</u>	<u>\$ —</u>	<u>\$ 11,986</u>
December 31, 2014	Level 1	Level 2	Level 3	Total
Certificates of deposit	\$ —	\$ 3,083	\$ —	\$ 3,083
Total marketable securities	<u>\$ —</u>	<u>\$ 3,083</u>	<u>\$ —</u>	<u>\$ 3,083</u>

We did not have any Level 3 investments or financial liabilities measured at fair value, on a recurring basis, as of December 31, 2015 and December 31, 2014. There were no transfers in or out of Level 1, 2, or 3 fair value measurements during the year ended December 31, 2015.

NOTE 9. INVENTORIES

For information regarding the valuation of our inventory refer to *Note 1. Operations and Summary of Significant Accounting Policies and Estimates*.

Our inventories are valued at the lower of cost or market and computed on a first-in, first-out (FIFO) basis. Components of inventories, net of reserves, are as follows (in thousands):

	December 31,	
	2015	2014
Parts and raw materials	\$ 40,578	\$ 28,014
Work in process	5,643	5,645
Finished goods	6,352	12,433
	<u>\$ 52,573</u>	<u>\$ 46,092</u>

NOTE 10. PROPERTY AND EQUIPMENT, NET

Details of property and equipment, net are as follows (in thousands):

	December 31,	
	2015	2014
Buildings and land	\$ 1,623	\$ 1,745
Machinery and equipment	30,479	27,495
Computer and communication equipment	19,744	20,035
Furniture and fixtures	1,319	1,527
Vehicles	215	130
Leasehold improvements	15,173	15,243
Construction in process	15	—
	<u>68,568</u>	<u>66,175</u>
Less: Accumulated depreciation	(58,923)	(56,416)
Total property and equipment, net	<u>\$ 9,645</u>	<u>\$ 9,759</u>

ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Depreciation expense recorded in continuing operations and included in selling, general and administrative expense is as follows (in thousands):

	Years Ended December 31,		
	2015	2014	2013
Depreciation expense	\$ 4,464	\$ 5,463	\$ 6,138

NOTE 11. GOODWILL

The following summarizes the changes in goodwill during the years ended December 31, 2015 and 2014 (in thousands):

	December 31, 2014	Additions	Effect of Currency Translation	December 31, 2015
	Consolidated	\$ 43,875	\$ 453	\$ (1,599)

	December 31, 2013	Additions	Effect of Currency Translation	December 31, 2014
	Consolidated	\$ 14,212	\$ 32,997	\$ (3,334)

Additions during the year represent the difference between the purchase price paid and the values assigned to identifiable assets acquired and liabilities assumed in purchase accounting, as described in *Note 2. Business Acquisitions*.

NOTE 12. INTANGIBLE ASSETS

Other intangible assets consisted of the following as of December 31, 2015 (in thousands, except weighted-average useful life):

	Gross Carrying Amount	Effect of Changes in Exchange Rates	Accumulated Amortization	Net Carrying Amount	Weighted- Average Useful Life in Years
Technology-based	\$ 14,130	\$ (1,535)	\$ (2,828)	\$ 9,767	10
Customer relationships	31,276	(2,805)	(5,550)	22,921	12
Trademarks and other	2,892	(247)	(1,192)	1,453	10
Total intangible assets	\$ 48,298	\$ (4,587)	\$ (9,570)	\$ 34,141	

Other intangible assets consisted of the following as of December 31, 2014 (in thousands, except weighted-average useful life):

	Gross Carrying Amount	Effect of Changes in Exchange Rates	Accumulated Amortization	Net Carrying Amount	Weighted- Average Useful Life in Years
Technology-based	\$ 14,130	\$ (928)	\$ (1,526)	\$ 11,676	12
Customer relationships	31,276	(1,710)	(2,873)	26,693	12
Trademarks and other	2,892	(149)	(801)	1,942	17
Total intangible assets	\$ 48,298	\$ (2,787)	\$ (5,200)	\$ 40,311	

Amortization expense relating to other intangible assets included in our income from continuing operations is as follows (in thousands):

	Years Ended December 31,		
	2015	2014	2013
Amortization expense	\$ 4,368	\$ 4,998	\$ 850

ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Estimated amortization expense related to intangibles for each of the five years 2016 through 2020 and thereafter is as follows (in thousands):

Year Ending December 31,		
2016	\$	4,215
2017		3,990
2018		3,977
2019		3,961
2020		3,332
Thereafter		14,666
	<u>\$</u>	<u>34,141</u>

NOTE 13. OTHER ACCRUED EXPENSES

As of December 31, 2015 and 2014, Other accrued liabilities was \$12.3 million and \$11.8 million, respectively. No individual items in Other accrued expenses exceeded 5% of total current liabilities.

NOTE 14. WARRANTIES

Provisions of our sales agreements include product warranties customary to these types of agreements, ranging from 12 months to 24 months following installation for Precision Power products and 3 years to 10 years following installation for our legacy inverter products. Costs related to legacy Inverter new product warranties are reflected in "Loss from discontinued operations, net of income taxes" in our Consolidated Statements of Operations, for all periods presented. Our provision for the estimated cost of warranties is recorded when revenue is recognized. We estimate the anticipated costs of repairing our products under such warranties based on the historical cost of the repairs. The assumptions we use to estimate warranty accruals are reevaluated periodically, in light of actual experience, and when appropriate, the accruals are adjusted. We also offer our legacy inverter customers the option to purchase additional warranty coverage up to 20 years after the base warranty period expires. These warranties, reflected as deferred revenue at time of sale, are included in Continuing operations on our Consolidated Statements of Operations as we will realize revenue in future periods as such warranty costs are incurred.

We establish accruals for warranty issues that are probable to result in future costs. Changes in product warranty accruals are as follows (in thousands):

	Years Ended December 31,		
	2015	2014	2013
Balances at beginning of period	\$ 1,612	\$ 3,187	\$ 2,601
Warranty liabilities acquired	—	260	—
Increases to accruals related to sales during the period	1,071	788	2,849
Warranty expenditures	(1,040)	(2,618)	(2,290)
Effect of changes in exchange rates	(10)	(5)	27
Balances at end of period	<u>\$ 1,633</u>	<u>\$ 1,612</u>	<u>\$ 3,187</u>

NOTE 15. STOCK-BASED COMPENSATION

As of December 31, 2015, we had two active stock-based incentive compensation plans; the 2008 Omnibus Incentive Plan and the Employee Stock Purchase Plan ("ESPP"). All new equity compensation grants are issued under these two plans; however, outstanding awards previously issued under inactive plans will continue to vest and remain exercisable in accordance with the terms of the respective plans. At December 31, 2015, there were 3.4 million shares reserved and 2.5 million shares available for future grant under our stock-based incentive plans.

2008 OMNIBUS INCENTIVE PLAN — The 2008 Omnibus Incentive Plan (the "Plan") provides officers, directors, key employees, and other persons an opportunity to acquire or increase a direct proprietary interest in our operations and future success. Our Board of Directors currently administers the Plan, and makes all decisions concerning which officers, directors, employees, and other persons are granted awards, how many to grant to each recipient, when awards are granted, how the Plan should be interpreted, whether to amend or terminate the Plan, and whether to delegate administration of the Plan to a committee. In May 2010, our shareholders approved an increase from 3,500,000 to 7,500,000 shares authorized for issuance under the Plan. The Plan provides for the grant of stock options, stock appreciation rights, restricted stock, stock units (including deferred stock units),

ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

unrestricted stock, and dividend equivalent rights. Any of the awards may be made as performance incentives to reward attainment of annual or long-term performance goals in accordance with the terms of the Plan. Stock options granted under the Plan may be non-qualified stock options or incentive stock options except that stock options granted to outside directors, consultants, or advisers providing services to us shall in all cases be non-qualified stock options. Included in the Plan is our 2012-2014 Long Term Incentive Plan ("2012-2014 LTI Plan") and our 2015 Long Term Incentive Plan ("2015 LTI Plan"). The Plan will terminate on May 7, 2018 unless the administrator terminates the Plan earlier. As of December 31, 2015, 2,120,030 shares of common stock were available for grant under the Plan.

Stock-based Compensation Expense

Non-cash stock-based compensation expense is primarily included in selling, general and administrative expense and was \$2.8 million, \$3.7 million, and \$9.8 million for the years ending December 31, 2015, 2014, and 2013, respectively.

Our stock-based compensation expense is based on the value of the portion of share-based payment awards that are ultimately expected to vest, assuming estimated forfeitures at the time of grant. Estimated forfeiture rates for our stock-based compensation expense applicable to options and RSUs was approximately 18% for the year ended December 31, 2015, 17% for the year ended December 31, 2014, and 16% for the year ended December 31, 2013.

Stock Options

Stock option awards are generally granted with an exercise price equal to the market price of our stock at the date of grant and with either a three or four-year vesting schedule and a term of 10 years, except as noted below.

Under our 2012-2014 LTI Plan, we made grants of performance based options during the first quarter of 2012, which vested in the first quarters of 2013, 2014, and 2015 based on the Company's achievement of return on net assets targets established by our Board of Directors at the beginning of 2012. Under our 2015 LTI Plan, we made grants of time-based options during the first quarter of 2015, which will vest annually over a three-year period. The fair value of options granted during the years ended December 31, 2015, 2014 and 2013 was estimated on the date of grant using the Black-Scholes-Merton option-pricing model using the following assumptions by grant year:

	2015	2014	2013
Fair value assumptions - stock options:			
Risk-free interest rates	1.1% - 1.4%	1.7% - 1.9%	0.74%
Expected dividend yield rates	—%	—%	—%
Expected term	4.3 years	5.3 years	5.6 years
Expected volatility	43%	53%	69%

The risk free interest rate is based on the five-year U.S. Treasury Bill at the time of the grant. Historically, company information is the primary basis for selection of the expected dividend yield. The expected term is based on historical experience. Expected volatility is based on historical volatility of our common stock using daily stock price observations.

The weighted-average fair value of options issued and total intrinsic value of options exercised were (in thousands, except share prices):

	2015	2014	2013
Weighted-average grant date fair value of options	\$ 9.50	\$ 10.80	\$ 10.55
Total intrinsic value of options exercised	\$ 5,203	\$ 13,657	\$ 12,917

ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Changes in outstanding time based stock options during the year ended December 31, 2015 were as follows (in thousands, except share prices):

	2015		2014		2013	
	Shares	Weighted-Average Exercise Price	Shares	Weighted-Average Exercise Price	Shares	Weighted-Average Exercise Price
Options outstanding at beginning of period	642	\$ 14.18	1,573	\$ 13.29	4,036	\$ 13.61
Options granted	171	26.26	57	18.77	—	—
Options exercised	(229)	13.95	(910)	13.01	(2,055)	13.31
Options forfeited	(38)	14.55	(76)	12.93	(199)	13.01
Options expired	(3)	16.25	(2)	21.97	(209)	19.74
Options outstanding at end of period	<u>543</u>	\$ 18.06	<u>642</u>	\$ 14.18	<u>1,573</u>	\$ 13.29
Options vested during the year	304		180		294	

Changes in outstanding performance based stock options during the year ended December 31, 2015 were as follows (in thousands, except share prices):

	2015		2014		2013	
	Shares	Weighted-Average Exercise Price	Shares	Weighted-Average Exercise Price	Shares	Weighted-Average Exercise Price
Options outstanding at beginning of period	380	\$ 12.58	1,239	\$ 13.38	1,623	\$ 12.65
Options granted	—	—	51	26.53	43	17.80
Options exercised	(137)	11.35	(408)	11.03	(89)	11.02
Options forfeited	—	—	(384)	17.12	(87)	11.02
Options expired	(144)	13.06	(118)	12.12	(251)	11.10
Options outstanding at end of period	<u>99</u>	\$ 12.68	<u>380</u>	\$ 12.58	<u>1,239</u>	\$ 13.38
Options vested during the year	64		364		314	

During each of the three years ended December 31, 2015, 2014 and 2013, the value of shares withheld for taxes from both time-based and performance based option exercises totaled \$1.0 million, \$1.6 million, and \$1.3 million, respectively.

As of December 31, 2015, there was \$1.0 million of total unrecognized compensation cost related to stock options granted and outstanding, net of expected forfeitures related to non-vested options, which is expected to be recognized through fiscal year 2017, with a weighted-average remaining vesting period of 2.0 years. Information about our stock options that are outstanding, options that we expect to vest and options that are exercisable at December 31, 2015 were as follows (in thousands except share prices and lives):

Options Expected to Vest:	Number	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Life	Aggregate Intrinsic Value
Options outstanding	642	\$ 17.10	6.3 years	\$ 7,146
Options expected to vest	606	16.63	6.1 years	7,031
Options exercisable	439	13.53	5.0 years	6,454

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The following table summarizes information about the stock options outstanding at December 31, 2015 (in thousands, except share prices and lives):

Range of Exercise Prices	Options Outstanding			Options Exercisable	
	Number Outstanding	Weighted-Average Remaining Contractual Life	Weighted-Average Exercise Price	Number Exercisable	Weighted-Average Exercise Price
\$7.69 to \$9.51	51	4.7 years	\$ 8.98	51	\$ 8.98
\$11.02 to \$11.02	94	6.0 years	11.02	94	11.02
\$11.21 to \$12.77	69	4.5 years	12.34	69	12.35
\$13.70 to \$14.21	70	4.4 years	14.00	70	14.00
\$14.50 to \$15.65	87	4.7 years	14.83	87	14.83
\$16.25 to \$18.77	82	7.4 years	17.99	44	17.32
\$20.19 to \$24.31	24	2.9 years	22.69	19	22.29
\$25.28 to \$25.28	2	8.3 years	25.28	2	25.28
\$26.32 to \$26.32	160	9.1 years	26.32	—	—
\$26.76 to \$26.76	3	8.1 years	26.76	3	26.76
\$7.69 to \$26.76	<u>642</u>	6.3 years	\$ 17.10	<u>439</u>	\$ 13.53

Restricted Stock Units

The fair value of our RSUs is determined based upon the closing fair market value of our common stock on the grant date. Changes in the unvested time based restricted stock units during the year ended December 31, 2015 were as follows (in thousands):

	2015		2014		2013	
	Shares	Weighted-Average Grant Date Fair Value	Shares	Weighted-Average Grant Date Fair Value	Shares	Weighted-Average Grant Date Fair Value
Balance at beginning of period	115	\$ 13.00	230	\$ 13.41	442	\$ 12.96
RSUs granted	159	26.70	86	21.05	99	17.58
RSUs vested	(86)	14.05	(163)	14.72	(242)	12.99
RSUs forfeited	(14)	12.69	(38)	13.39	(69)	12.88
Balance at end of period	<u>174</u>	\$ 24.88	<u>115</u>	\$ 13.00	<u>230</u>	\$ 13.41

Changes in the unvested performance based restricted stock units during the year ended December 31, 2015 were as follows (in thousands):

	2015		2014		2013	
	Shares	Weighted-Average Grant Date Fair Value	Shares	Weighted-Average Grant Date Fair Value	Shares	Weighted-Average Grant Date Fair Value
Balance at beginning of period	242	\$ 13.86	1,344	\$ 11.42	1,631	\$ 11.15
RSUs granted	62	26.27	59	26.53	50	17.80
RSUs vested	(75)	13.81	—	—	(235)	11.10
RSUs settled in cash	—	—	(418)	12.29	—	—
RSUs forfeited	(169)	14.25	(743)	13.14	(102)	11.02
Balance at end of period	<u>60</u>	\$ 26.27	<u>242</u>	\$ 13.86	<u>1,344</u>	\$ 11.42

ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The weighted-average fair value of RSUs issued and total fair value of RSUs converted to shares were (in thousands, except share prices):

	2015	2014	2013
Weighted-average grant date fair value of RSUs	\$ 26.66	\$ 22.87	\$ 17.73
Total fair value of RSUs converted to shares	\$ 3,782	\$ 5,439	\$ 11,032

As of December 31, 2015, there was \$2.5 million of total unrecognized compensation cost, net of expected forfeitures related to non-vested RSUs granted, which is expected to be recognized through fiscal 2018, with a weighted-average remaining vesting period of 1.2 years.

Employee Stock Purchase Plan

The ESPP, a stockholder-approved plan, provides for the issuance of rights to purchase up to 1,000,000 shares of common stock. In May 2010, shareholders approved an increase from 500,000 to 1,000,000 shares authorized for sale under our ESPP. Employees below the Vice President level are eligible to participate in the ESPP if employed by us for at least 20 hours per week during at least five months per calendar year. Participating employees may contribute up to the lesser of 15% of their eligible earnings or \$5,000 during each plan period. Currently, the plan period is six months. The purchase price of common stock purchased under the ESPP is currently equal to the lower of: 1) 85% of the fair market value of our common stock on the commencement date of each plan period or 2) 85% of the fair market value of our common shares on each plan period purchase date. At December 31, 2015, 338,948 shares remained available for future issuance under the ESPP.

Purchase rights granted under the ESPP are valued using the Black-Scholes-Merton model. As of December 31, 2015, there was \$0.1 million of total unrecognized compensation cost related to the ESPP that is expected to be recognized over a remaining period of five months. Total compensation expense was \$0.2 million for the year ended December 31, 2015, \$0.4 million for the year ended December 31, 2014, and \$0.2 million for the year ended December 31, 2013.

The fair value of each purchase right granted under the ESPP was estimated on the date of grant using the Black-Scholes-Merton option pricing model with the following assumptions:

	2015	2014	2013
Risk-free interest rates	0.07% - 0.42%	0.06% - 0.08%	0.07% - 0.10%
Expected dividend yield rates	—%	—%	—%
Expected term	0.5 years	0.5 years	0.5 years
Expected volatility	27.8%	52.0%	61.5%

The risk free interest rate is based on the six month U.S. Treasury Bill at the time of the grant. Historical company information is the primary basis for selection of the expected dividend yield. The expected term is based on historical experience. Expected volatility is based on historical volatility of our common shares using daily stock price observations.

NOTE 16. RETIREMENT PLANS

Defined contribution plans

We have a 401(k) profit sharing and retirement savings plan covering substantially all full-time U.S. employees. Participants may defer up to the maximum amount allowed as determined by law. Participants are immediately vested in their contributions. Profit sharing contributions to the plan, which are discretionary, are approved by the Board of Directors. Vesting in the profit sharing contribution account is based on years of service, with most participants fully vested after four years of credited service.

For the years ended December 31, 2015, 2014, and 2013 our contribution for participants in our 401(k) plan was 50% matching on contributions by employees up to 6% of the employee's compensation.

During the years ended December 31, 2015, 2014, and 2013 we recognized total defined contribution plan costs of \$0.7 million, \$0.6 million, and \$0.6 million, respectively, in "Selling, general, and administrative" expense on our Consolidated Statements of Operations.

Defined benefit plans

In connection with the HiTek acquisition discussed in *Note 2. Business Acquisitions*, we acquired the HiTek Power Limited Pension Scheme ("the HiTek Plan"). The HiTek Plan has been closed to new participants and additional accruals since 2006. In

ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

order to measure the expense and related benefit obligation, various assumptions are made including discount rates used to value the obligation, expected return on plan assets used to fund these expenses and estimated future inflation rates. These assumptions are based on historical experience as well as facts and circumstances. An actuarial analysis is used to measure the expense and liability associated with pension benefits. The net amount of the pension liability on our balance sheet recorded in Other long-term liabilities as of December 31, 2015 and December 31, 2014 was \$17.8 million and \$20.1 million, respectively. Anticipated payments to pensioners covered by the HiTek Plan are expected to be between \$1.0 million and \$1.5 million for each of the next ten years. We are committed to make annual fixed payments of \$1.0 million into the Hitek plan through 2024.

The following table sets forth the components of net periodic pension cost for the year ended December 31, 2015 (in thousands):

	Year Ended December 31,	
	2015	2014
Interest cost	\$ 1,093	\$ 1,061
Expected return on plan assets	(562)	(532)
Amortization of actuarial gains and losses	373	—
Net periodic pension cost	<u>\$ 904</u>	<u>\$ 529</u>

Assumptions used in the determination of the net periodic pension cost are:

	Year Ended December 31,	
	2015	2014
Discount Rate	3.9%	3.6%
Expected long-term return on plan assets	4.3%	4.0%

We have derived the expected return on assets of 4.3% per annum from the weighted expected return on each of the major categories of assets.

The status of the HiTek Plan as reflected in "Other long-term liabilities" on our Consolidated Balance Sheets is summarized as follows (in thousands):

	Year Ended December 31,	
	2015	2014
Projected benefit obligation, beginning of year	\$ 34,475	\$ —
Acquisition	—	34,816
Interest cost	1,093	1,061
Actuarial (gain) loss	(1,435)	1,672
Benefits paid	(825)	(460)
Translation adjustment	(1,842)	(2,614)
Projected benefit obligation, end of year	<u>\$ 31,466</u>	<u>\$ 34,475</u>
Plan assets, beginning of year	\$ 14,339	\$ —
Acquisitions	—	12,091
Actual return on plan assets	562	532
Contributions	958	3,084
Benefits paid	(825)	(460)
Actuarial (gain)	(583)	(8)
Translation adjustment	(774)	(900)
Plan assets, end of year	<u>\$ 13,677</u>	<u>\$ 14,339</u>
Funded status of plan	<u>\$ (17,789)</u>	<u>\$ (20,136)</u>

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The fair value of the Company's qualified pension plan assets by category for the year ended December 31, 2015 are as follows (in thousands):

	Level 1	Level 2	Level 3	Total
Multi-Asset Fund	\$ —	\$ 4,460	\$ —	\$ 4,460
Diversified Growth Fund	—	4,767	—	4,767
Index-Linked Gilts	—	2,113	—	2,113
Corporate Bonds	—	2,100	—	2,100
Cash	237	—	—	237
Total	\$ 237	\$ 13,440	\$ —	\$ 13,677

At December 31, 2015 the HiTek Plan assets of \$13.7 million were invested in four separate funds including a multi-asset fund (32.6%), a diversified growth fund (34.9%), an Investment grade long term bond fund (15.4%) and an index-linked gilt fund (15.4%). The asset and growth funds aim to generate an 'equity-like' return over an economic cycle with significantly reduced volatility relative to equity markets and have scope to use a diverse range of asset classes, including equities, bonds, cash and alternatives, e.g. property, infrastructure, high yield bonds, floating rate debt, private, equity, hedge funds and currency. The bond fund and gilt fund are invested in index-linked gilts and corporate bonds. These investments are intended to provide a degree of protection against changes in the value of the HiTek Plan's liabilities related to changes in long-term expectations for interest rates and inflation expectations, i.e. the protection assets provide a direct hedge against increases in the value of the HiTek Plan's liabilities caused by changes in financial conditions. The current strategy might be expected to generate a return of around 1.7% per annum in excess of the long-term expected return from gilts.

The fair value of the Company's qualified pension plan assets by category for the year ended December 31, 2014 are as follows (in thousands):

	Level 1	Level 2	Level 3	Total
Multi-Asset Fund	\$ —	\$ 4,685	\$ —	\$ 4,685
Diversified Growth Fund	—	4,950	—	4,950
Index-Linked Gilts	—	2,248	—	2,248
Corporate Bonds	—	2,238	—	2,238
Cash	218	—	—	218
Total	\$ 218	\$ 14,121	\$ —	\$ 14,339

NOTE 17. ACCUMULATED OTHER COMPREHENSIVE INCOME

Accumulated other comprehensive income consisted of the following (in thousands):

	Foreign Currency Adjustments	Unrealized Gains (Losses) on Marketable Securities	Total Accumulated Other Comprehensive Income
Balances at December 31, 2014	\$ 10,249	\$ 527	\$ 10,776
Current period other comprehensive income (loss)	(10,228)	(14)	(10,242)
Balances at December 31, 2015	\$ 21	\$ 513	\$ 534

NOTE 18. COMMITMENTS AND CONTINGENCIES

Disputes and Legal Actions

We are involved in disputes and legal actions arising in the normal course of our business. While we currently believe that the amount of any ultimate loss would not be material to our financial position, the outcome of these actions is inherently difficult to predict. In the event of an adverse outcome, the ultimate loss could have a material adverse effect on our financial position or reported results of operations. An unfavorable decision in patent litigation also could require material changes in production processes and products or result in our inability to ship products or components found to have violated third-party

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patent rights. We accrue loss contingencies in connection with our commitments and contingencies, including litigation, when it is probable that a loss has occurred and the amount of the loss can be reasonably estimated.

German Lawsuit against Jolaos related to Purchase Price Adjustment in Acquisition of Refusol

On April 8, 2013, our subsidiary AEI Holdings GmbH (“AEI Holdings”) acquired all the outstanding shares of Refusol Holding GmbH (“Refusol”) from Jolaos Verwaltungs GmbH (“Jolaos”) pursuant to the terms of the SPA. Jolaos is an affiliate of various Prettl entities which are contract manufacturers of certain Refusol three phase string inverters. Under the SPA, the preliminary base price paid for the shares of Refusol was subject to a post-closing balance sheet adjustment based on confirmation of the financial statements of Refusol effective as of the closing date. AEI Holdings and Jolaos were in disagreement on various accounting adjustments to the closing date financial statements of Refusol. After repeated unsuccessful attempts to have Jolaos submit the dispute to an independent German accounting firm as required under the SPA, in December 2013 AEI Holdings petitioned the designated District Court in Stuttgart (Landgericht Stuttgart), Germany to review the dispute. This dispute was settled in the fourth quarter of 2015.

Operating Leases

We have various operating leases for automobiles, equipment, and office and production facilities. Rent expense under operating leases was approximately \$5.3 million in 2015, \$5.7 million in 2014, and \$6.1 million in 2013.

The future minimum rental payments required under non-cancelable operating leases as of December 31, 2015 are as follows (in thousands):

2016	\$ 5,898
2017	3,348
2018	2,398
2019	2,388
2020	2,344
Thereafter	4,547
	\$ 20,923

*Future estimated payments on leases denominated in foreign currency are reflected above based on the estimated spot rate for that currency converted to US Dollars at December 31, 2015 and are subject to change.

Purchase Commitments

We have firm purchase commitments and agreements with various suppliers to ensure the availability of components. The obligation as of December 31, 2015 is approximately \$44.2 million. Our policy with respect to all purchase commitments, is to record losses, if any, when they are probable and reasonably estimable. We continuously monitor these commitments for exposure to potential losses and will record a provision for losses when it is deemed necessary.

NOTE 19. RESTRUCTURING COSTS

During the period, we recorded net restructuring expense related to continuing operations of approximately \$0.2 million. See *Note 3. Discontinued Operations* for more information on restructuring related to discontinued operations. This was comprised of \$0.3 million related to the current period activity offset by \$0.1 million, related to the expiration of obligations associated with the 2013 plan.

In June 2015, we committed to a restructuring plan in relation to the wind-down of our Inverter operations which has been completed as of December 31, 2015. Charges related to this plan that have an effect on continuing operations include strategic headcount reductions, streamlining operational processes and condensing administrative functions to improve efficiencies. This plan was completed in the fourth quarter of 2015.

In April 2014, we committed to a restructuring plan to take advantage of additional cost savings opportunities in connection with our acquisitions and realignment to a single organizational structure based on product line. The plan called for consolidating certain facilities and rebranding of products to allow us to use our resources more efficiently. This plan was completed in the fourth quarter of 2014.

In April 2013, we committed to a restructuring plan to take advantage of additional cost saving opportunities in connection with our acquisition of Refusol. The plan called for consolidating certain facilities, further centralizing our manufacturing and rationalizing certain products to most effectively meet customer needs. All activities under this restructuring plan were completed prior to December 31, 2013.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The following table summarizes the components of our restructuring costs incurred under the 2015 plan as of December 31, 2015 (in thousands):

	<u>Twelve Months Ended December 31,</u> <u>2015</u>	<u>Cumulative costs through December 31,</u> <u>2015</u>
Severance and related costs	\$ 184	\$ 184
Contract settlement costs	73	73
Total restructuring charges	<u>\$ 257</u>	<u>\$ 257</u>

The following table summarizes the components of our restructuring costs incurred under the 2014 plan as of December 31, 2015 (in thousands):

	<u>Twelve Months Ended December 31,</u> <u>2015</u>	<u>Cumulative costs through December 31,</u> <u>2015</u>
Severance and related costs	\$ —	\$ 1,282
Facility closure costs	—	582
Total restructuring charges	<u>\$ —</u>	<u>\$ 1,864</u>

The following table summarizes the components of our restructuring costs incurred under the 2013 plan as of December 31, 2015 (in thousands):

	<u>Twelve Months Ended December 31,</u> <u>2015</u>	<u>Cumulative costs through December 31,</u> <u>2015</u>
Severance and related costs	\$ —	\$ 2,762
Property and equipment and intangible asset impairments	—	43
Facility closure costs	(59)	1,206
Total restructuring charges	<u>\$ (59)</u>	<u>\$ 4,011</u>

The following table summarizes our restructuring liabilities under the 2015 plan (in thousands):

	<u>Balances at December 31, 2014</u>	<u>Costs incurred and charged to expense</u>	<u>Cost paid or otherwise settled</u>	<u>Effect of change in exchange rates</u>	<u>Balances at December 31, 2015</u>
Severance and related costs	\$ —	\$ 184	\$ (182)	\$ —	\$ 2
Contract settlement costs	—	73	(69)	—	4
Total restructuring liabilities	<u>\$ —</u>	<u>\$ 257</u>	<u>\$ (251)</u>	<u>\$ —</u>	<u>\$ 6</u>

The following table summarizes our restructuring liabilities under the 2014 plan (in thousands):

	<u>Balances at December 31, 2014</u>	<u>Costs incurred and charged to expense</u>	<u>Cost paid or otherwise settled</u>	<u>Effect of change in exchange rates</u>	<u>Balances at December 31, 2015</u>
Severance and related costs	\$ 825	\$ —	\$ (824)	\$ (1)	\$ —
Facility closure costs	51	—	(49)	(2)	—
Total restructuring liabilities	<u>\$ 876</u>	<u>\$ —</u>	<u>\$ (873)</u>	<u>\$ (3)</u>	<u>\$ —</u>

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The following table summarizes our restructuring liabilities under the 2013 plan (in thousands):

	Balances at December 31, 2014	Costs incurred and charged to expense	Cost paid or otherwise settled	Effect of change in exchange rates	Balances at December 31, 2015
Severance and related costs	\$ —	\$ —	\$ —	\$ —	\$ —
Facility closure costs	84	(59)	(12)	(13)	—
Total restructuring liabilities	<u>\$ 84</u>	<u>\$ (59)</u>	<u>\$ (12)</u>	<u>\$ (13)</u>	<u>\$ —</u>

NOTE 20. RELATED PARTY TRANSACTIONS

During the years ended December 31, 2015, 2014, and 2013, we engaged in the following transactions with companies related to members of our Board of Directors, as described below (in thousands):

	Years Ended December 31,		
	2015	2014	2013
Sales to related parties	\$ 706	\$ 321	\$ 622
Rent expense to related parties	—	1,850	1,880
Purchases from related parties	40	—	—

Sales - Related Parties

Members of our Board of Directors hold various executive positions and serve as directors at other companies, including companies that are our customers. During the year ended December 31, 2015, we had sales to three such companies as noted above and there was accounts receivable from one such customer totaling \$0.1 million at December 31, 2015. During the year ended December 31, 2014 we had sales to four such companies as noted above and there were no aggregate accounts receivable from these customers at December 31, 2014. During the year ended December 31, 2013 we had sales to one such company as noted above and there were no aggregate accounts receivable from this customer at December 31, 2013.

Purchases - Related Parties

During the year ended December 31, 2015, we had purchases from two such companies as noted above and there were no aggregate accounts payable from these vendors at December 31, 2015.

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NOTE 21. GEOGRAPHIC AND SIGNIFICANT CUSTOMER INFORMATION

We have operations in the United States, Europe and Asia. Our disclosure related to sales and long-lived assets by geographic area and information relating to major customers are presented below. Sales attributed to individual countries are based on customer location.

	Years Ended December 31,					
	2015		2014		2013	
Sales to external customers:	(In thousands)					
United States	\$ 268,257	64.7 %	\$ 230,843	62.8 %	\$ 169,362	56.6%
Canada	195	— %	347	0.1 %	93	—%
North America	268,452	64.7 %	231,190	62.9 %	169,455	56.6%
People's Republic of China	12,687	3.1 %	12,903	3.5 %	27,420	9.2%
Other Asian countries	61,839	15.0 %	56,938	15.6 %	62,706	20.8%
Asia	74,526	18.0 %	69,841	19.0 %	90,126	30.1%
Germany	46,719	11.3 %	43,343	11.8 %	31,651	10.6%
United Kingdom	25,100	6.1 %	22,670	6.2 %	5,752	1.9%
Other European countries	14	(0.1)%	289	— %	2,397	0.8%
Europe	71,833	17.3 %	66,302	18.0 %	39,800	13.3%
Total sales	<u>\$ 414,811</u>	<u>100.0 %</u>	<u>\$ 367,333</u>	<u>100.0 %</u>	<u>\$ 299,381</u>	<u>100.0%</u>

Sales to Applied Materials Inc., our largest customer, were \$123.5 million or 29.8% of total sales for 2015, \$109.3 million, or 29.8% of total sales, for 2014 and \$96.2 million, or 32.1% of total sales for 2013. Sales to Lam Research were \$84.2 million or 20.3% of total sales for 2015, \$73.0 million, or 19.9% of total sales, for 2014 and \$50.4 million, or 16.8% of total sales for 2013. Our sales to Applied Materials and Lam Research include precision power products used in semiconductor processing and solar, flat panel display, and architectural glass applications. No other customer accounted for 10% or more of our sales during these periods.

	December 31,	
	2015	2014
*Long lived assets:	(In thousands)	
United States	\$ 31,556	\$ 31,711
Asia	3,134	3,456
Europe	51,825	58,778
	<u>\$ 86,515</u>	<u>\$ 93,945</u>

* Long-lived assets include property and equipment, goodwill and other intangible assets.

NOTE 22. CREDIT FACILITY

In October 2012, we, along with two of our wholly-owned subsidiaries, AE Solar Energy, Inc. and Sekidenko, Inc., entered into a Credit Agreement, subsequently amended in November 2012 and August 2013, (the "Credit Agreement") with Wells Fargo Bank, National Association ("Wells Fargo"), as agent for and on behalf of certain lenders (each a "Lender"), which provides for a new secured revolving credit facility of up to \$50.0 million (the "Credit Facility"). The Credit Facility provides us with the ability to borrow up to \$50.0 million, although the amount of the Credit Facility may be increased by an additional \$25.0 million up to a total of \$75.0 million subject to receipt of lender commitments and other conditions. Borrowings under the Credit Facility are subject to a borrowing base based upon our domestic accounts receivable and inventory and are available for various corporate purposes, including general working capital, capital expenditures, and certain permitted acquisitions. The Credit Agreement also permits us to issue letters of credit which reduce availability under the Credit Agreement. The maturity date of the Credit Facility is October 12, 2017.

At our election, the loans comprising each borrowing will bear interest at a rate per annum equal to either: (a) a "base rate" plus between one-half (0.5%) and one (1.0%) full percentage point depending on the amount available for additional draws under the Credit Facility ("Base Rate Loan"); or (b) the LIBOR rate then in effect plus between one and one-half (1.5%) and two (2%) percentage points depending on the amount available for additional draws under the Credit Facility. The "base rate" for any

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Base Rate Loan will be the greatest of the federal funds rate plus one-half (0.5%) percentage point; the one-month LIBOR rate plus one (1.0%) percentage point; and Wells Fargo's "prime rate" then in effect. As of December 31, 2015, the rate in effect was 4.0%.

The Credit Agreement requires us to pay certain fees to the Lenders and contains affirmative and negative covenants, which, among other things, require us to deliver to the Lenders specified quarterly and annual financial information, and limit us and our Guarantors (as defined below), subject to various exceptions and thresholds, from, among other things: (i) creating liens on our assets; (ii) merging with other companies or engaging in other extraordinary corporate transactions; (iii) selling certain assets or properties; (iv) entering into transactions with affiliates; (v) making certain types of investments; (vi) changing the nature of our business; and (vii) paying certain distributions or certain other payments to affiliates. Additionally, there are the following financial covenants: (i) during any period in which \$12.5 million or less is available to us under the Credit Facility and for sixty (60) days thereafter, the Credit Agreement requires the maintenance of a defined consolidated fixed charge coverage ratio; and (ii) if there is any indebtedness under any issued and outstanding convertible notes, we are required to maintain a specified level of liquidity.

The Credit Agreement requires us to pay certain fees to the Lenders, including a \$2,500 collateral management fee for each month that the Credit Facility is in place, and a fee based on the unused amount of the Credit Facility. During the twelve months ended December 31, 2015 and 2014, we expensed \$0.5 million and \$0.4 million, respectively, in interest and fees related to unused line of credit fees and amortization of debt issuance costs. We did not borrow against the Credit Facility during the twelve months ended December 31, 2015. As of December 31, 2015, we had \$9.9 million of availability on our Wells Fargo Credit Facility. During the third quarter of 2015, the lender issued a letter of credit in the amount of \$2.0 million related to a customer contract.

Pursuant to a Guaranty and Security Agreement (the "GS Agreement"), borrowings under the Credit Facility are guaranteed by our wholly-owned subsidiaries Aera Corporation and AEI US Subsidiary, Inc., (collectively the "Guarantors"). Under the GS Agreement, we and the Guarantors granted the Lenders a security interest in certain, but not all, of our and the Guarantors' assets.

As part of the acquisition of Refusol described in *Note 2. Business Acquisitions*, we assumed the outstanding debt of Refusol as of the acquisition date. There were three outstanding loans with banks related to this debt, of which one was repaid and cancelled during the third quarter of 2013.

Refusol, GmbH had an outstanding loan agreement with Commerzbank Aktiengesellschaft ("Commerzbank") for up to 8.0 million Euros ("Commerzbank Loan Agreement"). The agreement allowed Refusol to borrow up to 8.0 million Euros through various types of instruments including an overdraft (revolving) facilities, money market (term) loans, surety loans, or guarantees. There was no maturity date. Borrowings under the revolving credit facility bore interest at 5.32%. Surety and guarantee loans bore interest at 1.5%. The Commerzbank Loan Agreement required the payment of a credit commission of 0.5% of the total loan amount. The agreement contained various covenants including a financial covenant requiring a specified level of equity. This line of credit was repaid and cancelled in the second quarter of 2014.

Refusol, GmbH also had an outstanding loan agreement with Bayerische Landesbank ("Bayern") which allowed it to borrow up to 4.0 million Euros either as overdraft facilities, term loans, or guarantees with repayment occurring one lump sum at the maturity date of the individual transaction with respect to term loans, or maturity of the loan agreement which was July 31, 2013 (the "Bayern Loan Agreement"). The overdraft facility bore interest at 4.5%. Term loans bore interest at the money market rate established by Bayern at the time of the loan plus a margin of 1.9%. Guarantees bore interest at 1.25% and had an issuing fee per guarantee. Loan commitment fees were 0.25% on the unused portion of the total loan amount. The Bayern Loan Agreement contained certain reporting requirements and a financial covenant requiring a specified level of equity.

Upon expiration of this agreement, Refusol, GmbH entered into a new loan agreement with Bayern under which it had the ability to borrow up to 4.0 million Euros (equal to \$4.3 million on December 31, 2015) as either bank overdrafts, term loans, guarantees, or letters of credit. The overdraft facility bore interest at 3.9%, guarantees bore a rate of 1.64% and interest on term loans was a fixed rate set for each term loan period based on money market rates. Loan commitment fees were 0.25%. This line of credit was repaid and cancelled in the third quarter of 2014.

Refusol, Inc., a wholly-owned subsidiary of Refusol, GmbH located in the United States, had a revolving line of credit with Wells Fargo with an aggregate principal amount of \$1.5 million and a maturity date of July 1, 2013. Borrowings under the line of credit were secured by all of Refusol, Inc.'s accounts receivable, inventory, and property, plant, and equipment and a letter of credit issued under the Commerzbank Loan Agreement. The line of credit bore interest at either (a) a fluctuating rate per annum one quarter of one percent (0.25%) above the Prime Rate or (b) the LIBOR rate then in effect plus two percent (2.0%). Refusol, Inc. had the option to select the method of interest each month. A commitment fee of 0.125% was payable by Refusol, Inc. on the unused portion of the line of credit. The line of credit contained certain affirmative and negative covenants limiting Refusol, Inc.'s ability to borrow additional funds or guarantee the debt of others. This line of credit was paid down and cancelled on its maturity date of July 1, 2013.

ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

NOTE 23. SUPPLEMENTAL QUARTERLY FINANCIAL DATA (UNAUDITED)

The following tables present unaudited quarterly results for each of the eight quarters in the period ended December 31, 2015, in thousands. We believe that all necessary adjustments have been included in the amounts stated below to present fairly such quarterly information. Due to the volatility of the industries in which our customers operate, the operating results for any quarter are not necessarily indicative of results for any subsequent period.

	Quarter Ended			
	December 31, 2015	September 30, 2015	June 30, 2015	March 31, 2015
Sales	\$ 86,891	\$ 109,756	\$ 108,654	\$ 109,510
Gross Profit	42,684	58,538	56,549	59,099
Restructuring	(117)	317	—	(2)
Operating income	16,173	30,168	28,779	31,536
Income from continuing operations, net of income taxes	11,490	23,313	23,024	25,655
Income (loss) from discontinued operations, net of income taxes*	24,775	(6,881)	(255,483)	(4,379)
Net income	36,265	16,432	(232,459)	21,276
Earnings per Share:				
Continuing Operations:				
Basic earnings per share	\$ 0.29	\$ 0.57	\$ 0.56	\$ 0.63
Diluted earnings per share	\$ 0.28	\$ 0.56	\$ 0.56	\$ 0.62
Discontinued Operations:				
Basic earnings (loss) per share	\$ 0.62	\$ (0.17)	\$ (6.24)	\$ (0.11)
Diluted earnings (loss) per share	\$ 0.61	\$ (0.17)	\$ (6.24)	\$ (0.11)
Net Income (Loss):				
Basic earnings (loss) per share	\$ 0.90	\$ 0.40	\$ (5.68)	\$ 0.52
Diluted earnings (loss) per share	\$ 0.89	\$ 0.40	\$ (5.68)	\$ 0.52

	Quarter Ended			
	December 31, 2014	September 30, 2014	June 30, 2014	March 31, 2014
Sales	\$ 110,163	\$ 91,584	\$ 82,226	\$ 83,360
Gross Profit	56,543	46,130	42,387	42,999
Restructuring	863	560	84	—
Operating income	28,609	20,130	16,000	21,353
Income from continuing operations, net of income taxes	23,312	15,917	13,127	17,139
Loss from discontinued operations, net of income taxes*	(13,993)	(3,615)	(2,481)	(2,424)
Net income	9,319	12,302	10,646	14,715
Earnings per Share:				
Continuing Operations:				
Basic earnings per share	\$ 0.58	\$ 0.40	\$ 0.32	\$ 0.42
Diluted earnings per share	\$ 0.57	\$ 0.39	\$ 0.32	\$ 0.41
Discontinued Operations:				
Basic loss per share	\$ (0.35)	\$ (0.09)	\$ (0.06)	\$ (0.06)
Diluted loss per share	\$ (0.35)	\$ (0.09)	\$ (0.06)	\$ (0.06)
Net Income:				
Basic earnings per share	\$ 0.23	\$ 0.31	\$ 0.26	\$ 0.36
Diluted earnings per share	\$ 0.23	\$ 0.30	\$ 0.26	\$ 0.35

*See Note 3. Discontinued Operations.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

We have established disclosure controls and procedures, which are designed to ensure that information required to be disclosed in reports filed or submitted under the Securities Exchange Act of 1934 (the "Act") is recorded, processed, summarized, and reported, within the time periods specified in the Securities and Exchange Commission's rules and forms. These disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed in the reports that we file or submit under the Act is accumulated and communicated to management, including our Principal Executive Officer (Yuval Wasserman, Chief Executive Officer) and Principal Financial Officer (Thomas Liguori, Executive Vice President & Chief Financial Officer), as appropriate, to allow timely decisions regarding required disclosures.

As of the end of the period covered by this report, we conducted an evaluation, with the participation of management, including our Chief Executive Officer and Chief Financial Officer, of the effectiveness of the design and operation of the disclosure controls and procedures pursuant to the Exchange Act Rule 13a-15(b). Based upon this evaluation, the Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective as of December 31, 2015. The conclusions of the Chief Executive Officer and Chief Financial Officer from this evaluation were communicated to the Audit Committee. We intend to continue to review and document our disclosure controls and procedures, including our internal controls and procedures for financial reporting, and may from time to time make changes aimed at enhancing their effectiveness and to ensure that our systems evolve with our business.

Management's Annual Report on Internal Control over Financial Reporting

It is management's responsibility to establish and maintain effective internal control over our financial reporting, which is a process designed under the supervision of our Chief Executive Officer and Chief Financial Officer and effected by our Board of Directors, management, and other personnel. Our internal control over financial reporting is designed to provide reasonable assurance concerning the reliability of our financial reporting and the preparation of our financial statements for external purposes in accordance with generally accepted accounting principles.

Management, with the participation of our Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of our internal control over financial reporting as of December 31, 2015, using the criteria described in *Internal Control-Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based upon this evaluation, management concluded that our internal control over financial reporting was effective as of December 31, 2015.

Grant Thornton LLP, an independent registered public accounting firm, has audited our Consolidated Financial Statements included in this Form 10-K, and as part of the audit, has issued a report, included herein, on the effectiveness of our internal control over financial reporting as of December 31, 2015.

Changes in Internal Control over Financial Reporting

There was no change in our internal control over financial reporting, except as discussed below, that occurred during the fourth quarter of 2015 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Our policy is to implement effective internal controls for all acquisitions within one year of the acquisition date consistent with the rest of the organization. HiTek was acquired in April 2014 and UltraVolt was acquired in August 2014. During the third quarter and fourth quarter prior to the filing of Form 10-K for the period ended December 31, 2015, the Company completed its efforts to ensure the existence of controls primarily related to cash disbursements, revenue, inventory procurement, segregation of duties, computer access controls, and computer change management controls.

Limitations on Controls and Procedures

Management has concluded that our disclosure controls and procedures and internal control over financial reporting provide reasonable assurance that the objectives of our control system are met. We do not expect, however, that our disclosure controls and procedures or internal control over financial reporting will prevent or detect all misstatements, errors, or fraud, if any. All control systems, no matter how well designed and implemented, have inherent limitations, and therefore no evaluation can provide absolute assurance that every misstatement, error, or instance of fraud, if any, or risk thereof, has been or will be prevented or detected. The occurrence of a misstatement, error, or fraud, if any, would not necessarily require a conclusion that our controls and procedures are not effective.

ITEM 9B. OTHER INFORMATION

None.

PART III

In accordance with General Instruction G(3) of Form 10-K, certain information required by this Part III is incorporated by reference to the definitive proxy statement relating to our 2016 Annual Meeting of Stockholders (the "2016 Proxy Statement"), as set forth below. The 2016 Proxy Statement will be filed with the Securities and Exchange Commission within 120 days after the end of our fiscal year.

ITEM 10. DIRECTORS AND EXECUTIVE OFFICERS OF THE REGISTRANT

The information set forth in the 2016 Proxy Statement under the headings "Proposal No. 1/ Election of Directors" and "Section 16(a) Beneficial Ownership Reporting Compliance" is incorporated herein by reference. The information under the heading "Executive Officers of the Registrant" in Part I of this Form 10-K is also incorporated herein by reference.

ITEM 11. EXECUTIVE COMPENSATION

The information set forth in the 2016 Proxy Statement under the headings "Executive Compensation" is incorporated herein by reference.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information set forth in the 2016 Proxy Statement under the headings "Security Ownership of Certain Beneficial Owners and Management" and "Equity Compensation Plan Information" is incorporated herein by reference.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS

The information is set forth in *Note 20. Related Party Transactions* in ITEM 8 "Financial Statements and Supplementary Data," and in the 2016 Proxy Statement under the caption "Certain Relationships and Related Transactions" is incorporated herein by reference.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

The information set forth in the 2016 Proxy Statement under the caption "Proposal No. 2/Ratification of the Appointment of Grant Thornton LLP as Advanced Energy's Independent Registered Public Accounting Firm for 2016" is incorporated herein by reference.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

(A) Documents filed as part of this Annual Report on Form 10-K are as follows:

1. Financial Statements:

Reports of Grant Thornton LLP

Consolidated Financial Statements:

Balance Sheets at December 31, 2015 and 2014

Statements of Operations for each of the three years in the period ended December 31, 2015

Statements of Comprehensive Income for each of the three years in the period ended December 31, 2015

Statements of Stockholders' Equity for each of the three years in the period ended December 31, 2015

Statements of Cash Flows for each of the three years in the period ended December 31, 2015

Notes to Consolidated Financial Statements

2. Financial Statement Schedules for each of the three years in the period ended December 31, 2015

NOTE: All schedules have been omitted because they are either not required or the information is included in the financial statements and notes thereto.

(B) Exhibits:

3.1 Restated Certificate of Incorporation, as amended. (1)

3.2 Restated By-laws, as amended. (19)

3.3 Amendment to Bylaws. (3)

3.4 Second Amendment to the By-laws of Advanced Energy Industries, Inc. (21)

3.5 Third Amendment to the By-Laws of Advanced Energy Industries, Inc. (22)

4.1 Form of Specimen Certificate for Common Stock. (2)

10.1 Lease, dated June 12, 1984, amended June 11, 1992, by and between Prospect Park East Partnership and Advanced Energy Industries, Inc., for property located in Fort Collins, Colorado. (2)

10.2 Lease, dated March 14, 1994, as amended, by and between Sharp Point Properties, L.L.C., and Advanced Energy Industries, Inc., for property located in Fort Collins, Colorado. (2)

10.3 Lease, dated May 19, 1995, by and between Sharp Point Properties, L.L.C. and Advanced Energy Industries, Inc., for a building located in Fort Collins, Colorado. (2)

10.4 Lease dated March 20, 2000, by and between Sharp Point Properties, L.L.C. and Advanced Energy Industries, Inc., for a building located in Fort Collins, Colorado. (5)

10.5 Lease Amendment, dated as of April 26, 2010 by and between Sharp Point Properties, LLC and Advanced Energy Industries, Inc., for a building located in Fort Collins, Colorado. (23)

10.6 Lease Amendment, dated as of August 19, 2010, by and between Sharp Point Properties, LLC and Advanced Energy Industries, Inc., for a building located in Fort Collins, Colorado. (25)

10.7 Lease Termination Agreement, dated as of December 28, 2011, by and between Sharp Point Properties, LLC and Advanced Energy Industries, Inc., for buildings located in Fort Collins, Colorado. (27)

- 10.8 Lease Agreement, dated as of December 28, 2011, by and between Sharp Point Properties, LLC and Advanced Energy Industries, Inc., for a building located at 1625 Sharp Point Drive, Fort Collins, Colorado. (27)
- 10.9 Lease Agreement, dated as of December 28, 2011, by and between Sharp Point Properties, LLC and Advanced Energy Industries, Inc., for a building located at 2424 Midpoint Drive, Fort Collins, Colorado. (27)
- 10.10 Lease dated January 16, 2003, by and between China Great Wall Computer Shenzhen Co., Ltd., Great Wall Limited and Advanced Energy Industries (Shenzhen) Co., Ltd., for a building located in Shenzhen, China. (6)
- 10.11 Form of Indemnification Agreement. (2)
- 10.12 Form of Director Indemnification Agreement. (21)
- 10.13 1995 Stock Option Plan, as amended and restated through February 7, 2001. (7)*
- 10.14 1995 Non-Employee Directors' Stock Option Plan, as amended and restated through February 7, 2001. (7)*
- 10.15 2001 Employee Stock Option Plan. (1)*
- 10.16 2002 Employee Stock Option Plan. (1)*
- 10.17 2003 Stock Option Plan. (1)*
- 10.18 Amendment No. 1 to 2003 Stock Option Plan, dated January 31, 2005. (8)*
- 10.19 Form of Stock Option Agreement pursuant to the 2003 Stock Option Plan. (8)*
- 10.20 Amended and Restated 2003 Employees' Stock Option Plan. (4)*
- 10.21 2003 Non-Employee Directors' Stock Option Plan. (1)*
- 10.22 2003 Non-Employee Directors' Stock Option Plan, as amended and restated. (4)*
- 10.23 Form of Restricted Stock Unit Award Agreement pursuant to the 2003 Non-Employee Directors' Stock Option Plan, as amended and restated as of February 15, 2006. (9)*
- 10.24 Form of Restricted Stock Unit Agreement pursuant to the 2003 Non-Employee Directors' Stock Option Plan. (10)*
- 10.25 Restricted Stock Unit Agreement pursuant to the 2003 Stock Option Plan. (11)*
- 10.26 Form of Notice of Grant for Restricted Stock Unit. (36)*
- 10.27 Form of Restricted Stock Unit Agreement. (36)*
- 10.28 Form of Notice of Grant of Stock Option. (36)*
- 10.29 Form of Incentive Stock Option Agreement. (36)*
- 10.30 Form of Non-Qualified Stock Option Agreement. (36)*
- 10.31 Form of LTI Notice of Grant. (36)*
- 10.32 Form of LTI Performance Stock Option Agreement pursuant to the 2008 Omnibus Incentive Plan. (36)*
- 10.33 Form of LTI Performance Stock Unit Agreement pursuant to the 2008 Omnibus Incentive Plan. (36)*
- 10.34 Non-employee Director Compensation summary. (12)*
- 10.35 Non-Employee Director Compensation Structure. (17)*
- 10.36 2012 - 2014 Long-Term Incentive (LTI) Plan. (44)*
- 10.37 2012 - 2014 Short Term Incentive (STI) Plan, as revised.*

- 10.38 2015 Long-Term Incentive (LTI) Plan. (45)*
- 10.39 2015 Short-Term Incentive (STI) Plan. (45)*
- 10.40 2016 Long-Term Incentive (LTI) Plan.*
- 10.41 2016 Short-Term Incentive (STI) Plan.*
- 10.42 2008 Omnibus Incentive Plan, as amended May 4, 2010. (26)*
- 10.43 Executive Change in Control Severance Agreement. (13)
- 10.43.1 Form of Amendment to Executive Change in Control Agreement. (34)
- 10.44 Retirement Term Sheet relating to Douglas S. Schatz. (14)
- 10.45 Offer Letter, dated September 28, 2014, by and among Advanced Energy Industries, Inc. and Yuval Wasserman. (39)
- 10.46 Executive Change in Control Agreement, dated April 28, 2011, by and among Advanced Energy Industries Inc. and Thomas O. McGimpsey. (31)
- 10.47 Executive Change in Control Agreement, dated September 30, 2014, by and among Advanced Energy Industries, Inc. and Yuval Wasserman. (39)
- 10.48 Relocation Agreement, dated August 5, 2013, by and among Advanced Energy Industries, Inc. and Yuval Wasserman. (19)
- 10.49 Executive Separation Agreement and Release of all Claims, dated May 5, 2014, by and between Advanced Energy Industries, Inc. and Gordon Tredger. (37)
- 10.50 Executive Transition and Separation Agreement, dated May 31, 2014, by and between Advanced Energy Industries, Inc. and Garry Rogerson. (38)
- 10.51 Executive Transition and Separation Agreement, dated November 17, 2014, by and between Advanced Energy Industries, Inc. and Danny C. Herron. (40)
- 10.52 Offer Letter to Thomas Liguori dated April 8, 2015. (41)
- 10.53 Executive Change in Control Agreement, dated May 18, 2015, by and among Advanced Energy Industries, Inc. and Thomas Liguori. (41)
- 10.54 Global Supply Agreement by and between Advanced Energy Industries, Inc. and Applied Materials Inc. dated August 29, 2005. (16)+
- 10.55 Shipping Amendment to the Global Supply Agreement by and between Advanced Energy Industries, Inc. and Applied Materials Inc. dated August 29, 2005. (16)+
- 10.56 Bridge Amendment to the Global Supply Agreement by and between Advanced Energy Industries, Inc. and Applied Materials Inc. dated January 26, 2011. (30)+
- 10.57 Sale and Purchase Agreement by and among Advanced Energy Industries, Inc., Blitz S13-103 GmbH, Jolaos Verwaltungs GmbH and Prettl Beteiligungs Holdings, GmbH, dated as of April 8, 2013. (35)
- 10.58 Credit Agreement, dated October 12, 2012, by and among Wells Fargo Bank, National Association, as administrative agent for certain lenders, Advanced Energy Industries, Inc., AE Solar Energy Inc., and Sekidenko, Inc. (33)
- 10.59 Guaranty and Security Agreement dated October 12, 2012 among Wells Fargo Bank, National Association, Advanced Energy Industries, Inc., AE Solar Energy, Inc., Sekidenko, Inc., AEI US Subsidiary, Inc. and Aera
- 10.60 Amendment No. 1 to Credit Agreement dated November 8, 2012 among Wells Fargo Bank, National Association, Advanced Energy Industries, Inc., AE Solar Energy, Inc., Sekidenko, Inc., AEI US Subsidiary, Inc. and Aera Corporation. (34)
- 10.61 Wells Fargo Credit Facility Amendment dated September 24, 2015. (42)

- 10.62 Fixed Dollar Accelerated Share Repurchase Transaction, dated November 6, 2015, between Advanced Energy Industries, Inc. and Morgan Stanley & Co. LLC. (43)

- 14.1 Code of Ethical Conduct, as revised.

- 21.1 Subsidiaries of Advanced Energy Industries, Inc.

- 23.1 Consent of Grant Thornton LLP, Independent Registered Public Accounting Firm.

- 31.1 Certification of the Chief Executive Officer Pursuant to Rule 13a-14(a) under the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.

- 31.2 Certification of the Principal Financial Officer Pursuant to Rule 13a-14(a) under the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.

- 32.1 Certification of the Chief Executive Officer Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.

- 32.2 Certification of the Chief Financial Officer Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.

- 101.INS XBRL Instance Document

- 101.SCH XBRL Taxonomy Extension Schema Document

- 101.CAL XBRL Taxonomy Extension Calculation Linkbase Document

- 101.DEF XBRL Taxonomy Extension Definition Linkbase Document

- 101.LAB XBRL Taxonomy Extension Label Linkbase Document

- 101.PRE XBRL Taxonomy Extension Presentation Linkbase Document

Attached as Exhibit 101 to this report are the following materials from Advanced Energy, Inc.'s Annual Report on Form 10-K for the year ended December 31, 2015, formatted in XBRL (eXtensible Business Reporting Language): (i) the Consolidated Statements of Operations, (ii) the Consolidated Statements of Comprehensive Earnings, (iii) the Consolidated Balance Sheets, (iv) the Consolidated Statements of Cash Flows, (v) the Consolidated Statements of Stockholders' Equity, and (vi) the Notes to the Consolidated Financial Statements.

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- (1) Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 2003 (File No. 000-26966), filed November 4, 2003.
 - (2) Incorporated by reference to the Registrant's Registration Statement on Form S-1 (File No. 33-97188), filed September 2, 1995.
 - (3) Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-26966), filed December 5, 2007.
 - (4) Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2007 (File No. 000-26966), filed August 3, 2007.
 - (5) Incorporated by reference to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2000 (File No. 000-26966), filed March 27, 2001.
 - (6) Incorporated by reference to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2003 (File No. 000-26966), filed February 24, 2004.
 - (7) Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2001 (File No. 000-26966), filed May 9, 2001.
 - (8) Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-26966), filed February 3, 2005.
 - (9) Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-26966), filed May 31, 2006.

- (10) Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2006 (File No. 000-26966), filed August 9, 2006.
- (11) Incorporated by reference to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2005 (File No. 000-26966), filed March 28, 2006.
- (12) Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-26966), filed February 1, 2006.
- (13) Incorporated by reference to the Registrant's Annual Report on Form 10-K (File No. 000-26966), filed March 31, 2005.
- (14) Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-26966), filed August 9, 2005.
- (15) Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-26966), filed July 6, 2005.
- (16) Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 2005 (File No. 000-26966), filed November 7, 2005.
- (17) Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-26966), filed July 28, 2006.
- (18) Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-26966), filed April 4, 2008.
- (19) Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q (File No. 000-26966), filed August 6, 2013.
- (20) Incorporated by reference to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2008 (File No. 000-26966), filed February 27, 2009.
- (21) Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-26966), filed December 14, 2009.
- (22) Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-26966), filed April 23, 2010.
- (23) Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-26966), filed May 7, 2010.
- (24) Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-26966), filed August 16, 2010.
- (25) Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-26966), filed August 20, 2010.
- (26) Incorporated by reference to the Registrant's Annual Report on Form 10-K (File No. 000-26966), filed March 2, 2011.
- (27) Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-26966), filed December 29, 2011.
- (28) Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-26966), filed August 2, 2011.
- (29) Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-26966), filed August 4, 2011.
- (30) Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q (File No. 000-26966), filed May 6, 2011.
- (31) Incorporated by reference to the Registrant's Annual Report on Form 10-K (File No. 000-26966) filed March 2, 2012.
- (32) Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-26966) filed April 30, 2012.
- (33) Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-26966) filed October 15, 2012.
- (34) Incorporated by reference to the Registrant's Annual Report on Form 10-K (File No. 000-26966) filed March 6, 2013.
- (35) Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-26966) filed April 11, 2013.
- (36) Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-26966) filed May 10, 2013.
- (37) Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-26966) filed May 5, 2014.
- (38) Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-26966) filed June 2, 2014.
- (39) Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-26966) filed October 1, 2014.
- (40) Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-26966) filed November 18, 2014.
- (41) Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-26966) filed April 16, 2015.
- (42) Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q (File No. 000-26966) filed November 5, 2015.
- (43) Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-26966) filed November 6, 2015.
- (44) Incorporated by reference to the Registrant's Annual Report on Form 10-K (File No. 000-26966), filed March 6, 2013.
- (45) Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q (File No. 000-26966) filed May 6, 2015.

* Compensation Plan

+ Confidential treatment has been granted for portions of this agreement.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this Annual Report on Form 10-K to be signed on its behalf by the undersigned, thereunto duly authorized.

ADVANCED ENERGY INDUSTRIES, INC.

(Registrant)

/s/ Yuval Wasserman

Yuval Wasserman
Chief Executive Officer

Date: February 25, 2016

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

<u>Signatures</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Yuval Wasserman</u> Yuval Wasserman	Chief Executive Officer and Director	February 25, 2016
<u>/s/ Thomas Liguori</u> Thomas Liguori	Executive Vice President and Chief Financial Officer	February 25, 2016
<u>/s/ Grant H. Beard</u> Grant H. Beard	Chairman of the Board	February 25, 2016
<u>/s/ Frederick A. Ball</u> Frederick A. Ball	Director	February 25, 2016
<u>/s/ Terry F. Hudgens</u> Terry F. Hudgens	Director	February 25, 2016
<u>/s/ Ronald C. Foster</u> Ronald C. Foster	Director	February 25, 2016
<u>/s/ Edward C. Grady</u> Edward C. Grady	Director	February 25, 2016
<u>/s/ Thomas M. Rohrs</u> Thomas M. Rohrs	Director	February 25, 2016

