ADVANCED ENERGY INDUSTRIES INC
Form 10-Q
April 30, 2018
Table Of Contents

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

FORM 10-Q

þ QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934.
For the quarterly period ended March 31, 2018
or
o 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

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 þ No o

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 (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes þ No o

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 þ	Accelerated filer o	Non-accelerated filer o (Do not check if a smaller reporting company)	Smaller reporting company o	Emerging growth company o

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. o
Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes o No þ

As of April 26, 2018 there were 39,329,426 shares of the registrant's Common Stock, par value $0.001 per share, outstanding.

ADVANCED ENERGY INDUSTRIES, INC.
FORM 10-Q
TABLE OF CONTENTS

Table Of Contents

PART I FINANCIAL STATEMENTS
ITEM 1. UNAUDITED CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
ADVANCED ENERGY INDUSTRIES, INC.
Unaudited Condensed Consolidated Balance Sheets
(In thousands, except per share amounts)

	March 31, 2018	December 31, 2017
ASSETS		
Current assets:		
Cash and cash equivalents	$413,874	$407,283
Marketable securities	3,197	3,104
Accounts and other receivable, net of allowances of $1,824 and $1,748 respectively	116,900	87,429
Inventories	96,842	78,450
Income taxes receivable	2,226	1,295
Other current assets	7,895	8,129
Current assets from discontinued operations	9,638	9,535
Total current assets	650,572	595,225
Property and equipment, net	20,706	17,795
Deposits and other assets	4,207	3,051
Goodwill	54,906	53,812
Intangible assets, net	33,445	33,499
Deferred income tax assets	38,741	18,841
Non-current assets from discontinued operations	11,084	11,085
TOTAL ASSETS	$813,661	$733,308
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$61,328	$48,177
Income taxes payable	13,011	5,365
Accrued payroll and employee benefits	13,890	18,412
Other accrued expenses	21,395	19,913
Customer deposits	9,738	6,402
Current liabilities from discontinued operations	7,272	7,850
Total current liabilities	126,634	106,119
Deferred income tax liabilities	6,592	4,556
Uncertain tax positions	17,701	17,031
Long term deferred revenue	32,443	33,402
Other long-term liabilities	38,803	36,282
Non-current liabilities from discontinued operations	14,279	15,277
Total liabilities	236,452	212,667
Commitments and contingencies (Note 17)		
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; 39,536 and 39,604 issued and outstanding, respectively	40	40
Additional paid-in capital	172,460	184,843
Accumulated other comprehensive income	4,837	2,533
Retained earnings	399,410	333,225
Advanced Energy stockholders' equity	576,747	520,641

Noncontrolling interest	462	—
Total stockholders’ equity	577,209	520,641
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	$813,661	$733,308

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

Table Of Contents

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

	Three Months Ended March 31, 2018	2017
Sales:		
Product	$171,209	$128,827
Services	24,408	20,524
Total sales	195,617	149,351
Cost of sales:		
Product	79,806	60,117
Services	12,166	10,403
Total cost of sales	91,972	70,520
Gross profit	103,645	78,831
Operating expenses:		
Research and development	17,637	12,503
Selling, general and administrative	28,648	22,098
Amortization of intangible assets	1,257	962
Total operating expenses	47,542	35,563
Operating income	56,103	43,268
Other income (expense), net	26	(3,208)
Income from continuing operations, before income taxes	56,129	40,060
Provision for income taxes	9,759	4,619
Income from continuing operations	46,370	35,441
Income from discontinued operations, net of income taxes	140	2,094
Net income	$46,510	$37,535
Income from continuing operations attributable to noncontrolling interest	31	—
Net income attributable to Advanced Energy Industries, Inc.	$46,479	$37,535
Basic weighted-average common shares outstanding	39,619	39,738
Diluted weighted-average common shares outstanding	39,995	40,179
Earnings per share:		
Continuing operations:		
Basic earnings per share	$1.17	$0.89
Diluted earnings per share	$1.16	$0.88
Discontinued operations:		
Basic earnings per share	$—	$0.05
Diluted earnings per share	$—	$0.05
Net income:		
Basic earnings per share	$1.17	$0.94
Diluted earnings per share	$1.16	$0.93

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

Table Of Contents

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

	Three Months Ended March 31,	
	2018	2017
Net income	$46,510	$37,535
Other comprehensive income:		
Foreign currency translation	2,472	3,028
Minimum benefit retirement liability	(168)	(16)
Comprehensive income	48,814	40,547
Comprehensive income attributable to noncontrolling interest	31	—
Comprehensive income attributable to Advanced Energy Industries, Inc.	$48,783	$40,547

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

Table Of Contents

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

	Three Months Ended March 31, 2018	2017
CASH FLOWS FROM OPERATING ACTIVITIES:		
Net income	$46,510	$37,535
Income from discontinued operations, net of income taxes	140	2,094
Income from continuing operations, net of income taxes	46,370	35,441
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation and amortization	2,861	1,987
Stock-based compensation expense	4,494	3,398
Loss on foreign exchange hedge	—	3,489
Net loss on disposal of assets	138	65
Changes in operating assets and liabilities, net of assets acquired:		
Accounts and other receivable, net	(17,457)	(431)
Inventories	(17,113)	(8,047)
Other current assets	364	(1,109)
Accounts payable	11,932	5,194
Other liabilities and accrued expenses	(2,346)	(614)
Income taxes	5,642	3,286
Net cash provided by operating activities from continuing operations	34,885	42,659
Net cash used in operating activities from discontinued operations	(1,784)	(2,453)
Net cash provided by operating activities	33,101	40,206
CASH FLOWS FROM INVESTING ACTIVITIES:		
Acquisition, net of cash acquired	(6,072)	—
Purchase of foreign exchange hedge	—	(3,489)
Purchases of property and equipment	(3,923)	(1,391)
Net cash used in investing activities from continuing operations	(9,995)	(4,880)
Net cash used in investing activities from discontinued operations	—	—
Net cash used in investing activities	(9,995)	(4,880)
CASH FLOWS FROM FINANCING ACTIVITIES:		
Purchase and retirement of common stock	(12,750)	—
Net payments related to stock-based award activities	(4,032)	(1,688)
Net cash used in financing activities from continuing operations	(16,782)	(1,688)
Net cash used in financing activities from discontinued operations	—	—
Net cash used in financing activities	(16,782)	(1,688)
EFFECT OF CURRENCY TRANSLATION ON CASH	167	1,133
INCREASE IN CASH AND CASH EQUIVALENTS	6,491	34,771
CASH AND CASH EQUIVALENTS, beginning of period	415,037	289,517
CASH AND CASH EQUIVALENTS, end of period	421,528	324,288
Less cash and cash equivalents from discontinued operations	7,654	6,339
CASH AND CASH EQUIVALENTS FROM CONTINUING OPERATIONS, end of period	$413,874	$317,949
SUPPLEMENTAL DISCLOSURE OF CASH FLOW INFORMATION:		
Cash paid for interest	$56	$—
Cash paid for income taxes	3,404	918
Cash received for refunds of income taxes	95	396
Cash held in banks outside the United States	320,753	239,553

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

ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO UNAUDITED CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(In thousands, except per share data)

NOTE 1. BASIS OF PRESENTATION

Advanced Energy Industries, Inc., a Delaware corporation, and its wholly-owned subsidiaries ("we," "us," "our," "Advanced Energy," or the "Company") design, manufacture, sell, and support power conversion products that transform electrical power into various usable forms. Our products enable manufacturing processes that use thin films for various products, such as semiconductor devices, flat panel displays, solar cells, architectural glass, optical coating and decorative and functional coating for consumer products. 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, and 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 sales of used equipment to companies using our products. As of December 31, 2015, we discontinued the production, engineering, and sales of our solar inverter product line. As such, all solar inverter revenues, costs, assets and liabilities are reported in Discontinued Operations for all periods presented herein. See Note 4. Discontinued Operations.

In the opinion of management, the accompanying Unaudited Condensed Consolidated Financial Statements contain all adjustments, consisting of normal, recurring adjustments, necessary to present fairly the financial position of the Company as of March 31, 2018, and the results of our operations and cash flows for the three months ended March 31, 2018 and 2017.

The Unaudited Condensed Consolidated Financial Statements included herein have been prepared pursuant to the rules and regulations of the Securities and Exchange Commission ("SEC"). Certain information and footnote disclosures normally included in financial statements prepared in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP") have been condensed or omitted pursuant to such rules and regulations. These Unaudited Condensed Consolidated Financial Statements should be read in conjunction with the audited Consolidated Financial Statements and Notes thereto contained in our Annual Report on Form 10-K for the fiscal year ended December 31, 2017 and other financial information filed with the SEC.

Estimates and Assumptions

The preparation of our Unaudited Condensed 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, goodwill, 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.

Critical Accounting Policies

Our accounting policies are described in our audited Consolidated Financial Statements and Notes contained in our Annual Report on Form 10-K for the year ended December 31, 2017. See Note 3. Revenue for the updated revenue recognition policy in accordance with ASU 2014-09, "Revenue from Contracts with Customers".

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.
Recently issued accounting pronouncements not yet adopted
In February 2016, the FASB issued ASU 2016-02, "Leases (Topic 842)," to increase transparency and comparability among organizations by recognizing lease assets and lease liabilities on the balance sheet and disclosing key information about leasing arrangements. ASU 2016-02 is effective for fiscal years beginning after December 15, 2018, including interim periods

Table of Contents
ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)
(in thousands except per share data)

within the year of adoption. Early adoption is permitted. Advanced Energy is currently assessing and has not yet determined the impact ASU 2016-02 may have on its Consolidated Financial Statements.

In February 2018, the FASB issued ASU 2018-02, "Income Statement—Reporting Comprehensive Income" to give companies the option to reclassify the income tax effects on items within accumulated other comprehensive income resulting from U.S. tax reform to retained earnings. ASU 2018-02 is effective for fiscal years beginning after December 15, 2018, including interim periods within those years. Early adoption is permitted. Advanced Energy is currently assessing and has not yet determined the impact ASU 2018-02 may have on its Consolidated Financial Statements.

Recently adopted accounting pronouncements

In May 2014, the FASB issued ASU 2014-09, "Revenue from Contracts with Customers" and has subsequently issued several supplemental and/or clarifying ASUs (collectively known as "ASC 606"). ASC 606 implements a five step model 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. ASC 606 is effective for fiscal periods beginning after December 15, 2017 and for the interim periods within that year. We adopted ASC 606 during the first quarter of fiscal year 2018 using the modified retrospective approach and recorded an adjustment to reflect the cumulative-effect of its adoption on all contracts with customers. See Note 3. Revenue for further details.

In October 2016, the FASB issued ASU 2016-16, "Accounting for Income Taxes: Intra-Entity Asset Transfers of Assets Other than Inventory." ASU 2016-16 changes the timing of income tax recognition for an intercompany sale of assets. ASU 2016-16 requires the seller's tax effects and the buyer's deferred taxes to be recognized immediately upon the sale instead of deferring accounting for the income tax implications until the assets are sold to a third party or recovered through use.   ASU 2016-16 is effective for fiscal years beginning after December 15, 2017 including interim periods within the year of adoption. We adopted ASU 2016-16 during the first quarter of fiscal year 2018 using the modified retrospective approach and recorded a adjustment to reflect the cumulative-effect of its adoption.

Cumulative-effect of recently adopted accounting pronouncements

The following table reflects the cumulative-effect of the adoption of ASC 606 and ASU 2016-16 using the modified retrospective approach for:

	December 31, 2017 as reported	Impact of ASC 606	Impact of ASU 2016-16	January 1, 2018 as adjusted
Accounts and other receivable, net	$ 87,429	$ 8,251	$ —	$ 95,680
Inventories	78,450	(3,561)	—	74,889
Total current assets	595,225	4,690	—	599,915
Deferred income tax assets	18,841	—	17,080	35,921
Total assets	733,308	4,690	17,080	755,078
Income taxes payable	5,365	—	921	6,286
Deferred income tax liabilities	4,556	1,143	—	5,699
Total liabilities	212,667	1,143	921	214,731
Retained earnings	333,225	3,547	16,159	352,931
Total stockholders' equity	520,641	3,547	16,159	540,347
Total liabilities and stockholders' equity	733,308	4,690	17,080	755,078

NOTE 2. BUSINESS ACQUISITION

On February 1, 2018, Advanced Energy acquired Trek Holding Co., LTD ("Trek"), a privately held company with operations in Tokyo, Japan and Lockport, New York. Trek has a 95% ownership interest in its U.S. subsidiary which is also its primary operation.

Table of Contents
ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)
(in thousands except per share data)

The components of the fair value of the total consideration transferred for the Trek acquisition are as follows:

Cash paid to owners	$11,723
Cash acquired	(5,651)
Total fair value of consideration transferred	$6,072

The following table summarizes estimated fair values of the assets acquired and liabilities assumed as of February 1, 2018:

Accounts and other receivable, net	$2,818
Inventories	4,037
Other current assets	275
Property and equipment	594
Other non-current assets	579
Deferred income tax assets	702
Accounts payable	(747)
Other accrued expenses	(2,696)
	5,562
Amortizable intangible assets:	
Technology	200
Customer relationships	200
Total amortizable intangible assets	400
Total identifiable net assets	5,962
Goodwill	110
Total fair value of consideration received	$6,072

A summary of the intangible assets acquired, amortization method and estimated useful lives as of February 1, 2018 follows:

	Amount	Amortization Method	Useful Life
Technology	$ 200	Straight-line	10
Customer relationships	200	Straight-line	10
Total	$ 400		

Goodwill and intangible assets are recorded in the functional currency of the entity and are subject to changes due to translation at each balance sheet date. Advanced Energy is in the process of finalizing the assessment of fair value for the assets acquired and liabilities assumed.

NOTE 3. REVENUE

Adoption of ASC 606, "Revenue from Contract with Customers"

Advanced Energy adopted ASC 606 using the modified retrospective method by recognizing the cumulative effect of the adoption of ASC 606, for all contracts with customers, to the opening balance of equity at January 1, 2018. Therefore, our comparative financial information as of December 31, 2017 has not been adjusted and continues to be reported under ASC Topic 605. The cumulative effect adjustment was based on the timing difference of revenue recognition between ASC Topic 605 and ASC 606 related to our inventory stocking agreements. Under ASC 606, revenue related to our inventory stocking agreements are recognized when inventory is shipped to our customers. Under ASC Topic 605, revenue was recognized when the inventory was consumed by our customers. The tables below show the quantitative impact of ASC 606 on our consolidated financial statements.

Table of Contents
ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)
(in thousands except per share data)

	March 31, 2018			
	As Reported	Adjustments		Balances without adoption of ASC 606
Accounts and other receivable, net	$116,900	$ (9,710	)	$107,190
Inventories	96,842	4,086		100,928
Total current assets	650,572	(5,624	)	644,948
TOTAL ASSETS	813,661	(5,624	)	808,037
Income taxes payable	13,011	(230	)	12,781
Total current liabilities	126,634	(230	)	126,404
Deferred income tax liabilities	6,592	(1,143	)	5,449
Total liabilities	236,452	(1,373	)	235,079
Retained earnings	399,410	(4,251	)	395,159
Advanced Energy stockholders’ equity	576,747	(4,251	)	572,496
Total stockholders’ equity	577,209	(4,251	)	572,958
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	$813,661	$ (5,624	)	$808,037

	Three Months Ended March 31, 2018			
	As Reported	Adjustments		Balances without adoption of ASC 606
Product sales	$171,209	$ (1,460	)	$169,749
Total sales	195,617	(1,460	)	194,157
Product cost of sales	79,806	(526	)	79,280
Total cost of sales	91,972	(526	)	91,446
Gross profit	103,645	(934	)	102,711
Operating income	56,103	(934	)	55,169
Income from continuing operations, before income taxes	56,129	(934	)	55,195
Provision for income taxes	9,759	(230	)	9,529
Income from continuing operations	46,370	(704	)	45,666
Net income	46,510	(704	)	45,806
Net income attributable to Advanced Energy Industries, Inc.	$46,479	$ (704	)	$45,775

	Three Months Ended March 31, 2018	
		Balances without

	As Reported	Adjustments	adoption of ASC 606
Net income	$46,510	$ (704)	$45,806
Changes in operating assets and liabilities, net of assets acquired:			
Accounts and other receivable, net	(17,457)	1,460	(15,997)
Inventories	(17,113)	(526)	(17,639)
Income taxes	5,642	(230)	5,412
Net cash provided by operating activities from continuing operations	$34,885	$ —	$34,885

10

Revenue Recognition

We recognize revenue when we have satisfied our performance obligations which typically occurs when control of the products or services have been transfered to our customers. The transaction price is based upon the standalone selling price. 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. Support services include warranty and non-warranty repair services, upgrades, and refurbishments on the products we sell. Repairs that are covered under our standard warranty do not generate revenue.

Practical Expedients

We expense incremental costs of obtaining contracts when the amortization period of the costs are less then 1 year. These costs are included in selling, general, and administrative expenses.

Nature of goods and services

Products

Advanced Energy provides highly-engineered, mission-critical, precision power conversion, measurement and control solutions to our global customers. We design, manufacture, sell and support precision power products that transform electrical power into various usable forms. Our power conversion products refine, modify and control the raw electrical power from a utility and convert it into power that is predictable, repeatable and customizable. Our products enable thin film manufacturing processes such as plasma enhanced chemical and physical deposition and etch for various semiconductor and industrial products, industrial thermal applications for material and chemical processes, and specialty power for critical industrial applications. We also supply thermal instrumentation products for advanced temperature measurement and control in these markets.

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. We principally serve original equipment manufacturers ("OEM") 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 device manufacturing, thin film applications for thin film renewables and architectural glass, and for other thin film applications including flat panel displays, and industrial coatings.

Services

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 United Kingdom.

As part of our ongoing service business, we satisfy our service obligations under preventative maintenance contracts and extended warranties which had previously been offered on our discontinued inverter products. Any up-front fees received for extended warranties or maintenance plans are deferred. Revenue under these arrangements are recognized ratably over the underlying terms as we do not have historical information which would allow us to project the estimated service usage pattern. We have deferred revenue related to our extended warranties and service contracts totaling $36.3 million as of March 31, 2018 and $37.5 million as of December 31, 2017.

Disaggregation of Revenue

The following table presents our net sales by product line:

	Three Months Ended March 31,	
	2018	2017
Semiconductor capital market	$136,010	$104,648
Industrial power capital market	35,199	24,179
Global support	24,408	20,524
Total	$195,617	$149,351

ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)
(in thousands except per share data)

The following table presents our net sales by geographic region:

	Three Months Ended March 31,			
	2018		2017	
Sales to external customers:				
United States	$130,369	66.5 %	$104,715	70.1 %
Canada	111	0.1 %	16	0.1 %
North America	130,480	66.6 %	104,731	70.2 %
People's Republic of China	9,551	4.9 %	8,133	5.4 %
Other Asian countries	30,307	15.5 %	21,436	14.4 %
Asia	39,858	20.4 %	29,569	19.8 %
Germany	19,286	9.9 %	11,854	7.9 %
United Kingdom	1,948	1.0 %	3,197	2.1 %
Other European countries	4,045	2.1 %	—	— %
Europe	25,279	13.0 %	15,051	10.0 %
Total	$195,617	100.0%	$149,351	100.0%

The following table presents our net sales by extended warranty and service contracts recognized over time and our product and service revenue recognized at a point in time:

	Three Months Ended March 31,	
	2018	2017
Product and service revenue recognized at point in time	$194,683	$148,530
Extended warranty and service contracts recognized over time	934	821
Total	$195,617	$149,351

NOTE 4. DISCONTINUED OPERATIONS

In December 2015, we completed the wind down of engineering, manufacturing and sales of our solar inverter product line (the "inverter business"). Accordingly, the results of our inverter business have been reflected as "Income from discontinued operations, net of income taxes" on our Consolidated Statements of Operations for all periods presented herein.

The effect of our sales of extended inverter warranties to our customers continues to be reflected in deferred revenue in our Consolidated Balance Sheets. Deferred revenue for extended inverter warranties and the associated costs of warranty service will be reflected in Sales and Cost of goods sold, respectively, from continuing operations in future periods in our Consolidated Statement of Operations, as the deferred revenue, is earned and the associated services are rendered. Extended warranties related to the inverter product line are no longer offered.

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

	Three Months Ended March 31,	
	2018	2017
Sales	$—	$—
Cost of sales	112	(828)
Total operating income (including restructuring)	(61)	(1,120)
Operating (loss) income from discontinued operations	(51)	1,948
Other income	124	163

Income from discontinued operations before income taxes	73	2,111
(Benefit) provision for income taxes	(67)	17
Income from discontinued operations, net of income taxes	$140	$2,094

Table of Contents
ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)
(in thousands except per share data)

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

	March 31, 2018	December 31, 2017
Cash and cash equivalents	$7,654	$ 7,754
Accounts and other receivables, net	1,379	1,363
Inventories	605	418
Current assets of discontinued operations	$9,638	$ 9,535
Other assets	$71	$ 72
Deferred income tax assets	11,013	11,013
Non-current assets of discontinued operations	$11,084	$ 11,085
Accounts payable and other accrued expenses	$517	$ 545
Accrued warranty	6,755	7,305
Current liabilities of discontinued operations	$7,272	$ 7,850
Accrued warranty	$14,109	$ 15,112
Other liabilities	170	165
Non-current liabilities of discontinued operations	$14,279	$ 15,277

NOTE 5. INCOME TAXES

The following table sets out the tax expense and the effective tax rate for our income from continuing operations:

	Three Months Ended March 31, 2018	2017
Income from continuing operations, before income taxes	$56,129	$40,060
Provision for income taxes	9,759	4,619
Effective tax rate	17.4 %	11.5 %

On December 22, 2017, the U.S. enacted the 2017 Tax Cuts and Jobs Act (“Tax Act”), which contains several key tax provisions that affected our financial results for 2017, including a one-time mandatory transition tax on our accumulated foreign earnings and the reduction of the corporate income tax rate from 35% to21%, effective January 1, 2018, which required a revaluation of our U.S. deferred tax assets. The Tax Act also contains several key tax provisions that will affect our financial results for 2018, including reduction of the corporate income tax rate from 35% to 21% and application of the global intangible low-taxed income of foreign subsidiaries (“GILTI tax”), among others.

In December 2017, the SEC staff issued Staff Accounting Bulletin No. 118, Income Tax Accounting Implications of the Tax Cuts and Jobs Act (SAB 118), which allows us to record provisional amounts during a measurement period not to extend beyond one year of the enactment date. Since the Tax Act was passed late in the fourth quarter of 2017, and ongoing guidance and accounting interpretation is expected over the next 12 months, we consider the accounting for the transition tax, deferred tax re-measurements, and other items to be incomplete due to the forthcoming guidance and our ongoing analysis of final year-end data and tax positions. We expect to complete our analysis within the measurement period in accordance with SAB 118.

Our effective tax rates differ from the U.S. federal statutory rate of 21% and35% for the three months ended March 31, 2018 and 2017, respectively, primarily due to the benefit of earnings in foreign jurisdictions which are subject to lower tax rates. Our effective tax rate for the three months ended March 31, 2018 was also impacted by the effect of the recently enacted Tax Act, with the benefit from the corporate income tax rate reduction to 21% offset by additional GILTI tax, and entry into additional foreign taxable jurisdictions. Additionally, the March 2018 rate includes $1.9 million in tax expense related to our change in estimated U.S. transition tax.

Our policy is to classify accrued interest and penalties related to unrecognized tax benefits in our income tax provision. The amount of interest and penalties accrued related to our unrecognized tax benefits for the three months ended March 31, 2018 and 2017 was not significant.

Table of Contents

ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)
(in thousands except per share data)

NOTE 6. 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 our diluted EPS is similar to the computation of our basic EPS except that 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 our outstanding stock options and restricted stock units had been converted to common shares, and if such assumed conversion is dilutive.

The following is a reconciliation of the weighted-average shares outstanding used in the calculation of basic and diluted EPS for the three months ended March 31, 2018 and 2017:

	Three Months Ended March 31,	
	2018	2017
Income from continuing operations	$46,370	$35,441
Income attributable to noncontrolling interest	31	—
Income from continuing operations attributable to Advanced Energy Industries, Inc.	$46,339	$35,441
Basic weighted-average common shares outstanding	39,619	39,738
Assumed exercise of dilutive stock options and restricted stock units	376	441
Diluted weighted-average common shares outstanding	39,995	40,179
Continuing operations:		
Basic earnings per share	$1.17	$0.89
Diluted earnings per share	$1.16	$0.88

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

	Three Months Ended March 31,	
	2018	2017
Restricted stock units	2	1

Stock Buyback

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. In November 2017, our Board of Directors approved an extension to the share repurchase program to December 2019 from its original maturity of March 2018. As of March 31, 2018, we had $57.3 million remaining for the authorized repurchase of shares.

In March 2018, we entered into Stock Repurchase Plan and Agreement to repurchase up to $50.0 million of our common stock through December 31, 2018 subject to certain pricing conditions. In March 2018 we repurchased $12.8 million of shares of our common stock in the open market under the Stock Repurchase Plan and Agreement. A total of 180,942 shares of our common stock was repurchased at an average price of $70.47 per share. There were no shares repurchased from related parties. The $12.8 million share repurchase was recognized as a reduction to Additional paid-in capital. Repurchased shares were retired and assumed the status of authorized and unissued shares. As of March 31, 2018, we had $37.2 million remaining for the authorized repurchase of shares under the Stock Repurchase Plan and Agreement. Subsequent to March 31, 2018 we repurchased $15.7 million of shares of our common stock in the open market under the Stock Repurchase Plan and Agreement. A total of 254,015 shares of our common stock was repurchased at an average price of $62.01 per share.

NOTE 7. MARKETABLE SECURITIES AND ASSETS MEASURED AT FAIR VALUE

Our investments with original maturities of more than three months at time of purchase and that are intended to be held for no more than 12 months, are considered marketable securities available for sale.

Table of Contents
ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)
(in thousands except per share data)

Our marketable securities consist of certificates of deposit as follows:

	March 31, 2018		December 31, 2017	
	Cost	Fair Value	Cost	Fair Value
Total marketable securities	$3,196	$3,197	$3,103	$3,104

The maturities of our marketable securities available for sale as of March 31, 2018 are as follows:

	Earliest		Latest
Certificates of deposit	4/10/2018	to	3/18/2019

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. As of March 31, 2018, we do not believe any of the underlying issuers of our marketable securities are at risk of default.

The following tables present information about our marketable securities measured at fair value, on a recurring basis, as of March 31, 2018 and December 31, 2017. The tables indicate the fair value hierarchy of the valuation techniques utilized to determine fair value. We did not have any financial liabilities measured at fair value, on a recurring basis, as of March 31, 2018 and December 31, 2017.

March 31, 2018	Level 1	Level 2	Level 3	Total
Total marketable securities	$—	$3,197	$ —	$3,197

December 31, 2017	Level 1	Level 2	Level 3	Total
Total marketable securities	$—	$3,104	$ —	$3,104

There were no transfers in or out of Level 1, 2, or 3 fair value measurements during the three months ended March 31, 2018.

NOTE 8. 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. We did not enter into any new foreign currency exchange forward contracts during the three months ended March 31, 2018. During the three months ended March 31, 2017, 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. We did not have any currency exchange rate contracts outstanding as of March 31, 2018. At December 31, 2017 we had outstanding Euro and Pound Sterling forward contracts.

The notional amount of foreign currency exchange contracts outstanding at December 31, 2017 was $16.3 million and the fair value of these contracts was not significant at December 31, 2017.

During the three months ended March 31, 2018 and 2017 the gains and losses recorded related to the foreign currency exchange contracts are as follows:

	Three Months Ended March 31,

	2018	2017
Foreign currency (loss) gain from foreign currency exchange contracts	$(750)	$ 39

These gains and losses were offset by corresponding gains and losses on the revaluation of the underlying intercompany debt and both are included as a component of Other income (expense), net, in our Unaudited Condensed Consolidated Statements of Operations.

During the first quarter of 2017 we entered into a foreign currency exchange rate forward contract at a cost of $3.5 million, to mitigate the exchange rate risk associated with a planned offshore acquisition which was not consummated. This derivative instrument was designated as a hedge for accounting purposes. The hedge expired upon maturity in the first quarter of 2017. The cost of the forward contract is recorded as a component of Other income (expense), net in our Condensed Consolidated Statement of Operations.

(in thousands except per share data)

NOTE 9. ACCOUNTS AND OTHER RECEIVABLE

Accounts and other receivable are recorded at net realizable value. Components of accounts and other receivable, net of reserves, are as follows:

	March 31, 2018	December 31, 2017
Amounts billed, net	$107,190	$ 87,429
Unbilled receivables	9,710	—
Total receivables, net	$116,900	$ 87,429

Amounts billed, net consist of amounts that have been invoiced to our customers in accordance with our terms and conditions and are shown net of an allowance for doubtful accounts.

Unbilled receivables consist of amounts where we have satisfied our contractual obligations related to inventory stocking contracts with customers. Such amounts typically become billable to the customer upon their consumption of the inventory managed under the stocking contracts. We anticipate that substantially all unbilled receivables will be invoiced and collected over the next twelve months.

NOTE 10. INVENTORIES

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

	March 31, 2018	December 31, 2017
Parts and raw materials	$71,284	$ 58,567
Work in process	13,054	7,986
Finished goods	12,504	11,897
Total	$96,842	$ 78,450

NOTE 11. PROPERTY AND EQUIPMENT

Property and equipment, net is comprised of the following:

	March 31, 2018	December 31, 2017
Buildings and land	$1,846	$1,788
Machinery and equipment	37,886	36,579
Computer and communication equipment	25,391	26,819
Furniture and fixtures	1,479	1,568
Vehicles	273	341
Leasehold improvements	14,156	17,286
Construction in process	725	802
	81,756	85,183
Less: Accumulated depreciation	(61,050)	(67,388)
Property and equipment, net	$20,706	$17,795

Table of Contents
ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)
(in thousands except per share data)

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

	Three Months Ended March 31,	
	2018	2017
Depreciation expense	$1,604	$1,025

NOTE 12. GOODWILL
The following summarizes the changes in goodwill during the three months ended March 31, 2018:

	Beginning Balance	Additions	Effect of Changes in Exchange Rates	Ending Balance
March 31, 2018	$ 53,812	$ 110	$ 984	$54,906

NOTE 13.INTANGIBLE ASSETS
Intangible assets consisted of the following as of March 31, 2018 and December 31, 2017:

March 31, 2018	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Customer relationships	$ 30,885	$ (11,763)	$ 19,122
Technology	19,397	(6,192)	13,205
Trademarks and other	2,707	(1,589)	1,118
Total	$ 52,989	$ (19,544)	$ 33,445
December 31, 2017	**Gross Carrying Amount**	**Accumulated Amortization**	**Net Carrying Amount**
Customer relationships	$ 30,034	$ (10,787)	$ 19,247
Technology	18,702	(5,559)	13,143
Trademarks and other	2,623	(1,514)	1,109
Total	$ 51,359	$ (17,860)	$ 33,499

Amortization expense related to intangible assets is as follows:

	Three Months Ended March 31,	
	2018	2017
Amortization expense	$1,257	$962

Estimated amortization expense related to intangibles is as follows:

Year Ending December 31,	
2018 (remaining)	$3,778
2019	5,019
2020	4,313
2021	4,207
2022	3,938

Thereafter	12,190
Total	$33,445

17

Table of Contents

ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)
(in thousands except per share data)

NOTE 14. WARRANTIES

Provisions of our sales agreements include customary product warranties, ranging from 12 months to 24 months following installation. The estimated cost of our warranty obligation is recorded when revenue is recognized and is based upon our historical experience by product, configuration and geographic region.

Our estimated warranty obligation is included in Other accrued expenses in our Consolidated Balance Sheets. Changes in our product warranty obligation are as follows:

	Three Months Ended March 31,	
	2018	2017
Balances at beginning of period	$2,312	$2,329
Warranty liabilities acquired	92	—
Increases to accruals	178	2,181
Warranty expenditures	(506)	(389)
Effect of changes in exchange rates	8	5
Balances at end of period	$2,084	$4,126

NOTE 15. PENSION LIABILITY

In connection with the acquisition of HiTek Power Group, a privately-held provider of high voltage power solutions, in 2014, we acquired the HiTek Power Limited Pension Scheme (the "HiTek Plan"). The HiTek Plan has been closed to new participants since April 1, 2002 and to additional accruals since April 5, 2005. In 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. We are committed to make annual fixed payments of $0.9 million into the HiTek Plan through April 30, 2024, and then $1.9 million from May 1, 2024 through November 30, 2033.

The net pension liability is included in Other long-term liabilities in our balance sheet as follows:

	March 31, 2018	December 31, 2017
Pension liability	$20,490	$ 19,797

The following table sets forth the components of net periodic pension cost for the three months ended March 31, 2018 and 2017:

	Three Months Ended March 31,	
	2018	2017
Interest cost	$ 218	$ 264
Expected return on plan assets	(161)	(140)
Amortization of actuarial gains and losses	136	70
Net periodic pension cost	$ 193	$ 194

NOTE 16. STOCK-BASED COMPENSATION

On May 4, 2017, the shareholders approved the Company's 2017 Omnibus Incentive Plan ("the 2017 Plan") and all shares that were then available for issuance under the 2008 Omnibus Incentive Plan are now available for issuance under the 2017 Plan. The 2017 Plan provides for the grant of stock options, stock appreciation rights, restricted stock, stock units (including deferred stock units), unrestricted stock, and dividend equivalent rights. Any of the awards issued under the 2017 Plan may be issued as performance-based awards to align compensation awards to the attainment of annual or long-term performance goals. As of March 31, 2018, there were 2.7 million shares available for grant and 3.3 million shares reserved under the 2017 Plan.

Table of Contents
ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)
(in thousands except per share data)

Restricted stock units ("RSU's") are generally granted with a grant date fair value equal to the market price of our stock at the date of grant and with either a three or four year vesting schedule or performance-based vesting as determined at the time of grant.

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 or performance-based vesting as determined at the time of grant. Stock option awards generally have a term of 10 years.

We recognize stock-based compensation expense based on the fair value of the awards issued and the functional area of the employee receiving the award. Stock-based compensation for the three months ended March 31, 2018 and 2017 was as follows:

	Three Months Ended March 31,	
	2018	2017
Stock-based compensation expense	$4,494	$3,398

Changes in the outstanding RSU awards during the three months ended March 31, 2018 were as follows:

	Number of RSUs	Weighted-Average Grant Date Fair Value
RSUs outstanding at beginning of period	386	$ 51.06
RSUs granted	160	$ 69.32
RSUs vested	(155)	$ 52.59
RSUs forfeited	(55)	$ 47.51
RSUs outstanding at end of period	336	$ 59.64

Changes in the outstanding stock option awards during the three months ended March 31, 2018 were as follows:

	Number of Options	Weighted-Average Exercise Price per Share
Options outstanding at beginning of period	317	$ 18.97
Options exercised	(17)	$ 18.36
Options expired	(1)	$ 12.19
Options outstanding at end of period	299	$ 19.02

NOTE 17. COMMITMENTS AND CONTINGENCIES

We have firm purchase commitments and agreements with various suppliers to ensure the availability of components. The obligation as of March 31, 2018 is approximately $177.4 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.

We are involved in disputes and legal actions arising in the normal course of our business. There have been no material developments in legal proceedings in which we are involved during the three months ended March 31, 2018.

NOTE 18. RELATED PARTY TRANSACTIONS

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 three months ended March 31, 2018, we engaged in the following

Table of Contents
ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)
(in thousands except per share data)

transactions with companies related to members of our Board of Directors, as described below:

	Three Months Ended March 31,	
	2018	2017
Sales to related parties	$73	$577
Number of related party customers	1	1

Our accounts receivable balance from related party customers with outstanding balances as of March 31, 2018 and December 31, 2017 is as follows:

	March 31, 2018	December 31, 2017
Accounts receivable from related parties	$ 7	$ 27
Number of related party customers	1	1

NOTE 19. SIGNIFICANT CUSTOMER INFORMATION

The following table summarizes sales, and percentages of sales, by customers that individually accounted for 10% or more of our sales for the three months ended March 31, 2018 and 2017:

	Three Months Ended March 31,			
	2018	% of Total Sales	2017	% of Total Sales
Applied Materials, Inc.	$69,872	35.7%	$54,518	36.5%
LAM Research	39,726	20.3%	32,016	21.4%

The following table summarizes the accounts receivable balances, and percentages of the total accounts receivable, for customers that individually accounted for 10% or more of accounts receivable as of March 31, 2018 and December 31, 2017:

	March 31, 2018		December 31, 2017	
Applied Materials, Inc.	$46,131	39.5%	$36,755	42.0%
LAM Research	15,957	13.7%	5,421	6.2 %

Our sales to Applied Materials, Inc. and LAM Research include precision power products used in semiconductor processing and solar and flat panel display. No other customer accounted for 10% or more of our sales or accounts receivable balances during these periods.

NOTE 20. CREDIT FACILITY

The Company is party to a Loan Agreement, as amended (the "Loan Agreement") with Bank of America N.A. ("BA") which provides a revolving line of credit of up to $150.0 million subject to certain funding conditions. The Loan Agreement expires in July 28, 2022. Interest on amounts drawn shall be paid quarterly based upon the LIBOR Daily Floating Rate then in effect, plus between one and one-quarter (1.25%) and one and three-quarters (1.75%) percentage points depending on the Funded Debt to EBITDA ratio. As of March 31, 2018, the interest rate was 3.13%. The Loan Agreement also requires the Company to pay the lender on a quarterly basis an unused commitment fee based on credit availability. The obligations under the Loan Agreement are unsecured until the Funded Debt to EBITDA ratio exceeds 2.0 to 1.0, at which time the Company and certain affiliates' tangible and intangible personal property will be subject to a first priority, perfected lien and security interest in favor of BA pursuant to a Security Agreement. As of March 31, 2018, the Company is in compliance with all covenants required under the Loan Agreement. At

March 31, 2018 our credit availability under the Loan Agreement was $150.0 million. During the three months ended March 31, 2018, we had less than $0.1 million of expenses related to interest and unused line of credit fees.

Table Of Contents

ITEM 2. MANAGEMENT’S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

Special Note on Forward-Looking Statements

The following discussion contains, in addition to historical information, forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. Statements in this report that are not historical information are forward-looking statements. For example, statements relating to our beliefs, expectations and plans are forward-looking statements, as are statements that certain actions, conditions or circumstances will continue. The inclusion of words such as "anticipate," "expect," "estimate," "can," "may," "might," "continue," "enables," "plan," "intend," "should," "could," "would," "likely," "potential," or "believe," as well as statements that events or circumstances "will" occur or continue, indicate forward-looking statements. Forward-looking statements involve risks and uncertainties, which are difficult to predict and many of which are beyond our control. Therefore, actual results could differ materially and adversely from those expressed in any forward-looking statements. Neither we nor any other person assumes responsibility for the accuracy and completeness of such forward-looking statements and readers are cautioned not to place undue reliance on forward-looking statements.

For additional information regarding factors that may affect our actual financial condition, results of operations and accuracy of our forward-looking statements, see the information under the caption "Risk Factors" in Part II, Item 1A of this Quarterly Report on Form 10-Q and, in our Annual Report on Form 10-K for the year ended December 31, 2017. We undertake no obligation to revise or update any forward-looking statements for any reason.

BUSINESS OVERVIEW

We design, manufacture, sell and support precision power products that transform electrical power into various usable forms. Our power conversion products refine, modify and control the raw electrical power from a utility and convert it into power that is predictable, repeatable and customizable. Our products enable thin film manufacturing processes such as plasma enhanced chemical and physical deposition and etch for various semiconductor and industrial products, industrial thermal applications for material and chemical processes, and specialty power for critical industrial applications. 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 well as provides upgrades and refurbishment services, and sales of used equipment to businesses that use our products. The markets we serve include:

- Semiconductor capital equipment market - 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, wafer inspection and metrology.
- Industrial power capital equipment market - Our industrial power capital market is comprised of products for Thin Films Industrial Power and Specialty Power applications.

Thin Films Industrial Power applications include glass coating, glass manufacturing, flat panel displays, solar cell manufacturing, and similar thin film manufacturing, including data storage, hard and optical coating.

Specialty Power applications include power control modules for metal fabrication and treatment, and material and chemical processing. Our high voltage industrial applications include scanning electron microscopy, medical equipment, and instrumentation applications such as x-ray and mass spectroscopy, as well as general electron gun sources for scientific and industrial applications.

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.

We acquired Trek Holding Co., LTD ("Trek"), a privately held company with operations in Tokyo, Japan and Lockport, New York on February 1, 2018. Trek has a 95% ownership interest in its U.S. subsidiary which is also its primary operation. Trek designs, manufactures and sells high-voltage amplifiers, power supplies and generators, high-performance electrostatic measurement instruments and electrostatic discharge (ESD) sensors and monitors to the global marketplace. Trek's standard and custom-OEM products are used in industry and research in aerospace, automotive, electronics, electrostatics, materials, medical, military, nanotechnology, photovoltaic/solar, physics, plasma, semiconductor and test and measurement applications. Trek’s comprehensive portfolio of power supply products strengthen and accelerate Advanced Energy’s growth in high voltage applications.

Table Of Contents

The analysis presented below is organized to provide the information we believe will be helpful for understanding our historical performance and relevant trends going forward. This discussion should be read in conjunction with our Unaudited Condensed Consolidated Financial Statements in Part I, Item 1 of this report, including the notes thereto. Also included in the following analysis are measures that are not in accordance with U.S. GAAP. A reconciliation of the non-GAAP measures to U.S. GAAP is provided below.

Results of Continuing Operations

The following table sets forth certain data, and the percentage of sales each item reflects, derived from our Unaudited Condensed Consolidated Statements of Operations for the periods indicated:

	Three Months Ended March 31,			
	2018		2017	
Sales	$195,617	100.0 %	$149,351	100.0 %
Gross profit	103,645	53.0	78,831	52.8
Operating expenses	47,542	24.3	35,563	23.8
Operating income from continuing operations	56,103	28.7	43,268	29.0
Other income (expense), net	26	—	(3,208)	(2.2)
Income from continuing operations before income taxes	56,129	28.7	40,060	26.8
Provision for income taxes	9,759	5.0	4,619	3.1
Income from continuing operations, net of income taxes	$46,370	23.7 %	$35,441	23.7 %

SALES

The following tables summarize net sales and percentages of net sales, by product line, for the three months ended March 31, 2018 and 2017:

	Three Months Ended March 31,		Change 2018 v. 2017	
	2018	2017	Dollar	Percent
Semiconductor capital market	$136,010	$104,648	$31,362	30.0 %
Industrial power capital market	35,199	24,179	11,020	45.6 %
Global support	24,408	20,524	3,884	18.9 %
Total	$195,617	$149,351	$46,266	31.0 %

	Three Months Ended March 31,	
	2018	2017
Semiconductor capital market	69.5 %	70.1 %
Industrial power capital market	18.0 %	16.2 %
Global support	12.5 %	13.7 %
Total	100.0 %	100.0 %

Total Sales

Sales increased $46.3 million, or 31.0%, to $195.6 million for the three months ended March 31, 2018 as compared to the three months ended March 31, 2017 and increased $16.4 million, or 9.2%, as compared to the three months ended December 31, 2017. The increase in sales was primarily due to demand in the semiconductor market driven by our strength in, and demand for our etch applications, as well as increased sales in the industrial markets we serve. Sales for the three months ended March 31, 2018 includes $7.9 million associated with our recently acquired Trek and Excelsys businesses.

Sales in the semiconductor market increased $31.4 million, or 30.0%, for the three months ended March 31, 2018 as compared to the three months ended March 31, 2017 and increased $12.4 million, or 10.1%, as compared to the three months ended December 31, 2017. Our growth in the semiconductor market has been fueled by our leadership in etch applications,

Table Of Contents

specifically related to advanced memory and transition to 3DNAND, along with advances in logic technology. Sales growth in each of the periods is driven primarily by recent program wins which have moved into production and delivery.

Sales in the industrial markets increased $11.0 million, or 45.6%, for the three months ended March 31, 2018 as compared to the three months ended March 31, 2017 and increased $4.6 million, or 15.0%, as compared to the three months ended December 31, 2017. The industrial markets we serve include solar panel, flat panel display, power control modules, data storage, architectural glass, consumer electronics, high voltage and other industrial manufacturing markets. Our customers in these markets are primarily global and regional original equipment manufacturers.

Global service sales increased $3.9 million, or 18.9%, for the three months ended March 31, 2018 as compared to the three months ended March 31, 2017 due to share gains and growth in the installed base. Global service sales decreased $0.6 million, or 2.5%, for the three months ended March 31, 2018 compared to the three months ended December 31, 2017 due to timing and mix of projects during the period.

Backlog

Our backlog was $145.7 million at March 31, 2018 as compared to $131.3 million at December 31, 2017. Backlog remains strong primarily due to demand in the semiconductor and industrial thin film markets.

GROSS PROFIT

For the three months ended March 31, 2018, gross profit increased $24.8 million to $103.6 million as compared to gross profit of $78.8 million for the same period in 2017. Gross profit as a percent of sales remained flat at 53.0% for the three months ended March 31, 2018, from 52.8% for the same period in 2017. Gross profit for the three months ended March 31, 2018 includes $3.7 million from our recently acquired Trek and Excelsys businesses.

OPERATING EXPENSE

Operating expenses increased $12.0 million to $47.5 million, or 24.3% of sales, for the three months ended March 31, 2018 from $35.6 million, or 23.8% of sales, for the same period in 2017.

The following table summarizes our operating expenses as a percentage of sales for the periods indicated:

	Three Months Ended March 31,			
	2018		2017	
Research and development	$17,637	9.0 %	$12,503	8.4 %
Selling, general, and administrative	28,648	14.7%	22,098	14.8%
Amortization of intangible assets	1,257	0.6 %	962	0.6 %
Total operating expenses	$47,542	24.3%	$35,563	23.8%

Research and Development

We perform research and development of products for new or emerging applications, technological changes to provide higher performance, lower cost, or other attributes that we may expect to advance our customers’ products. We believe that continued development of technological applications, 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.

Research and development expenses increased $5.1 million to $17.6 million, or 9.0% of sales, for the three months ended March 31, 2018 from $12.5 million, or 8.4% of sales, for the same period in 2017. The increase in research and development expense is due to our investment in new programs to maintain and increase our technological leadership and provide solutions to our customers' evolving needs. Research and development for the three months ended March 31, 2018 includes $0.6 million from our recently acquired Trek and Excelsys businesses.

Selling, General and Administrative

Our selling expenses support domestic and international sales and marketing activities that include personnel, trade shows, advertising, 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, including acquisition-related activities.

Selling, general and administrative expenses increased $6.6 million to $28.6 million, or 14.7%, of sales for the three months ended March 31, 2018 from $22.1 million, or 14.8% of sales, for the same period in 2017. The increase in selling, general

Table Of Contents

and administrative expense is primarily driven by increased headcount and payroll, and costs associated with business development. Selling, general and administrative expenses for the three months ended March 31, 2018 includes $1.2 million from our recently acquired Trek and Excelsys businesses.

Other Income (Expense), net

Other income (expense), net consists primarily of interest income and expense, foreign exchange gains and losses, gains and losses on sales of fixed assets, and other miscellaneous items. Other income (expense), net was less than $0.1 million for the three months ended March 31, 2018, as compared to a loss of $3.2 million for the same period in 2017. The loss in 2017 was primarily the cost of a foreign currency exchange rate forward contract that we entered into for a potential offshore acquisition that we decided not to consummate. See Note 8. Derivative Financial Instruments in Part I, Item 1 "Unaudited Condensed Consolidated Financial Statements" contained herein.

Provision for Income Taxes

We recorded an income tax provision for the three months ended March 31, 2018 of $9.8 million compared to $4.6 million for the three months ended March 31, 2017. The effective tax rate for the three months ended March 31, 2018 is 17.4% compared to 11.5% for the three months ended March 31, 2017.

The effective tax rates differ from the U.S. federal statutory rate of 21% and 35% for the 2018 and 2017 periods, respectively, primarily due to the benefit of the earnings in foreign jurisdictions which are subject to lower tax rates. Our effective tax rate for the three month ended March 31, 2018 was also impacted by the effect of the recently enacted 2017 Tax Cuts and Jobs Act (“Tax Act”), with the benefit from the corporate income tax rate reduction to 21% offset by additional global intangible low-taxed income of foreign subsidiaries tax (“GILTI tax”), and entry into additional foreign taxable jurisdictions, among others.

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.

The Tax Act contains several key tax provisions that affected our financial results for 2017, including a one-time mandatory transition tax on our accumulated foreign earnings and the reduction of the corporate income tax rate from 35% to 21%, effective January 1, 2018, which required a revaluation of our U.S. deferred tax assets. The Tax Act also contains several key tax provisions that affect our financial results for 2018, including reduction of the corporate income tax rate from 35% to 21% and application of the GILTI tax. Additionally, the March 2018 rate includes $1.9 million in tax expense related to our change in estimated U.S. transition tax.

In December 2017, the SEC staff issued Staff Accounting Bulletin No. 118, Income Tax Accounting Implications of the Tax Cuts and Jobs Act (SAB 118), which allows us to record provisional amounts during a measurement period not to extend beyond one year of the enactment date. Since the Tax Act was passed late in the fourth quarter of 2017, and ongoing guidance and accounting interpretation is expected over the next 12 months, we consider the accounting for the transition tax, deferred tax re-measurements, and other items to be incomplete due to the forthcoming guidance and our ongoing analysis of final year-end data and tax positions. We expect to complete our analysis within the measurement period in accordance with SAB 118.

Results of Discontinued Operations

We completed the wind down of our inverter engineering, manufacturing and sales product line in December 2015. Accordingly, the inverter product line is presented as a discontinued operation for all periods presented herein. Extended warranties previously sold for the inverter product line are reflected in deferred revenue from continuing operations on our Unaudited Condensed 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.

Table Of Contents

Income from discontinued operations, net of income taxes are as follows:

	Three Months Ended March 31,	
	2018	2017
Sales	$—	$—
Cost of sales	112	(828)
Total operating (income) expense	(61)	(1,120)
Operating income from discontinued operations	(51)	1,948
Other income	124	163
Income from discontinued operations before income taxes	73	2,111
Provision for income taxes	(67)	17
Income from discontinued operations, net of income taxes	$140	$2,094

Operating income from discontinued operations for the three months ended March 31, 2018 and 2017 reflects the recovery of accounts receivable and the effect of changes in our estimated product warranty liability.

Non-GAAP Results

Management uses non-GAAP operating income and non-GAAP EPS to evaluate business performance without the impacts of certain non-cash charges and other charges which are not part of our usual operations. We use these non-GAAP measures to assess performance against business objectives, make business decisions, including developing budgets and forecasting future periods. In addition, management's incentive plans include these non-GAAP measures as criteria for achievements. 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. However, we believe these non-GAAP measures provide additional information that enables readers to evaluate our business from the perspective of management. 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 non-cash related charges, such as the amortization of intangible assets, stock-based compensation, and restructuring charges, as well as acquisition-related costs and other nonrecurring costs, as they are not indicative of future performance. The tax effect of our non-GAAP adjustments represents the anticipated annual tax rate applied to each non-GAAP adjustment after consideration of their respective book and tax treatments.

Reconciliation of Non-GAAP measure - operating expenses and operating income from continuing operations, excluding certain items	Three Months Ended March 31,	
	2018	2017
Gross profit from continuing operations, as reported	$103,645	$78,831
Operating expenses from continuing operations, as reported	47,542	35,563
Adjustments:		
Stock-based compensation	(4,494)	(3,398)
Amortization of intangible assets	(1,257)	(962)
Acquisition-related costs	(350)	—
Facility expansion and relocation costs	(476)	—
Non-GAAP operating expenses from continuing operations	40,965	31,203
Non-GAAP operating income from continuing operations	$62,680	$47,628

Table Of Contents

Reconciliation of Non-GAAP measure - operating expenses and operating income from continuing operations, excluding certain items	Three Months Ended March 31,	
	2018	2017
Gross profit from continuing operations, as reported	53.0 %	52.8 %
Operating expenses from continuing operations, as reported	24.3	23.8
Adjustments:		
Stock-based compensation	(2.3)	(2.3)
Amortization of intangible assets	(0.6)	(0.6)
Acquisition-related costs	(0.2)	—
Facility expansion and relocation costs	(0.2)	—
Non-GAAP operating expenses from continuing operations	21.0	20.9
Non-GAAP operating income from continuing operations	32.0 %	31.9 %

Reconciliation of Non-GAAP measure - income from continuing operations, excluding certain items	Three Months Ended March 31,	
	2018	2017
Income from continuing operations, less noncontrolling interest, net of income taxes	$46,339	$35,441
Adjustments:		
Stock-based compensation	4,494	3,398
Amortization of intangible assets	1,257	962
Loss on foreign exchange hedge	—	3,489
Acquisition-related costs	350	—
Facility expansion and relocation costs	476	—
Tax Cuts and Jobs Act Impact	1,853	—
Tax effect of non-GAAP adjustments	(1,343)	(1,396)
Non-GAAP income from continuing operations, net of income taxes	$53,426	$41,894
Non-GAAP diluted earnings per share	$1.34	$1.04

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. From time to time, we may also reduce prices to customers to decrease sales prices due to reductions in the cost structure of our products from cost improvement initiatives and decreases in component part prices.

Liquidity and Capital Resources

LIQUIDITY

We believe that adequate liquidity and cash generation are 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 as well as our credit facility noted below.

At March 31, 2018, we had $417.1 million in cash, cash equivalents, and marketable securities. We believe that our current and available cash levels, available credit facility, as well as our cash flows from future operations, will be adequate to meet anticipated working capital needs, levels of capital expenditures, acquisitions and contractual obligations for the next twelve months. We may, however, seek additional financing from time to time.

In addition to available cash, cash equivalents, and marketable securities, we have an outstanding Loan Agreement (the “Loan Agreement”) with a bank which provides a revolving line of credit of up to $150.0 million subject to certain funding conditions expiring in July 2022. The Loan Agreement provides us with further future flexibility for execution of our strategic

26

Table Of Contents

plans. At March 31, 2018, we had $150.0 million in available funding under the Loan Agreement. For more information on the Loan Agreement, see "Note 20. Credit Facility" as set forth in Part I Item 1 of this Form 10-Q.

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. In November 2017, our Board of Directors approved an extension to the share repurchase program to December 2019 from its original maturity of March 2018.

In March 2018, we entered into a Stock Repurchase Plan and Agreement to repurchase up to $50.0 million of our common stock through December 31, 2018 subject to certain pricing conditions. In March 2018 we repurchased $12.8 million of shares of our common stock in the open market under the Stock Repurchase Plan and Agreement. A total of 180,942 shares of our common stock was repurchased at an average price of $70.47 per share. Subsequent to March 31, 2018 we repurchased $15.7 million of shares of our common stock in the open market under the Stock Repurchase Plan and Agreement. A total of 254,015 shares of our common stock was repurchased at an average price of $62.01 per share. There were no shares repurchased from related parties. We had $37.2 million and $21.5 million remaining for the authorized repurchase of shares under the Stock Repurchase Plan and Agreement as of March 31, 2018 and April 26th, 2018, respectively.

CASH FLOWS

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

	Three Months Ended March 31,	
	2018	2017
Net cash provided by operating activities from continuing operations	$34,885	$42,659
Net cash used in operating activities from discontinued operations	(1,784)	(2,453)
Net cash provided by operating activities	33,101	40,206
Net cash used in investing activities from continuing operations	(9,995)	(4,880)
Net cash used in investing activities from discontinued operations	—	—
Net cash used in investing activities	(9,995)	(4,880)
Net cash used in financing activities from continuing operations	(16,782)	(1,688)
Net cash used in financing activities from discontinued operations	—	—
Net cash used in financing activities	(16,782)	(1,688)
EFFECT OF CURRENCY TRANSLATION ON CASH	167	1,133
INCREASE IN CASH AND CASH EQUIVALENTS	6,491	34,771
CASH AND CASH EQUIVALENTS, beginning of period	415,037	289,517
CASH AND CASH EQUIVALENTS, end of period	421,528	324,288
Less cash and cash equivalents from discontinued operations	7,654	6,339
CASH AND CASH EQUIVALENTS FROM CONTINUING OPERATIONS, end of period	$413,874	$317,949

2018 CASH FLOWS COMPARED TO 2017

Net cash provided by operating activities

Net cash provided by operating activities for the three months ended March 31, 2018 was $33.1 million, as compared to $40.2 million for the same period in 2017. The decrease of $7.1 million in net cash flows from operating activities, as compared to the same period in 2017, is due to additional investment in working capital with increases to accounts receivable, inventory, and accounts payable, offset partially by improved earning from operations.

Net cash used in investing activities

Net cash used in investing activities for the three months ended March 31, 2018 was $10.0 million, as compared to $4.9 million for the three months ended March 31, 2017. Included in cash used in investing activities for the three months ended March 31, 2018 was $6.1 million used in the acquisition of Trek.

Table Of Contents

Net cash used in financing activities

Net cash used in financing activities for the three months ended March 31, 2018 was $16.8 million, as compared to $1.7 million for the three months ended March 31, 2017. Included in cash used in financing activities for the three months ended March 31, 2018 was $12.8 million for the repurchase of company stock.

Effect of currency translation on cash

During the three months ended March 31, 2018, currency translation had a $0.2 million favorable impact as compared to a $1.1 million favorable impact during the three months ended March 31, 2017. Our foreign operations primarily sell product and incur expenses in the related local currency. Exchange rate 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 adversely impacted. The functional currencies of our worldwide operations include U.S. dollar ("USD"), Canadian Dollar ("CAD"), Swiss Franc ("CHF"), Chinese Yuan ("CNY"), Euro ("EUR"), Pound Sterling ("GBP"), Indian Rupee ("INR"), Japanese Yen ("JPY"), South Korean Won ("KRW"), and New Taiwan Dollar ("TWD"). Our purchasing and sales activities are primarily denominated in USD, CNY, EUR, and JPY. The change in these key currency rates during the three months ended March 31, 2018 and 2017 are as follows:

		Three Months Ended March 31,	
From	To	2018	2017
CAD	USD	(2.7)%	0.8%
CHF	USD	2.3 %	1.8%
CNY	USD	3.6 %	0.8%
EUR	USD	2.9 %	1.5%
GBP	USD	3.9 %	1.2%
INR	USD	(1.8)%	4.8%
JPY	USD	6.0 %	4.7%
KRW	USD	0.6 %	7.9%
SGD	USD	1.9 %	3.5%
TWD	USD	2.2 %	6.3%

Critical Accounting Policies and Estimates

The preparation of financial statements and related disclosures in conformity with U.S. GAAP requires us to make judgments, assumptions and estimates that affect the amounts reported in the Condensed Consolidated Financial Statements and accompanying notes. Note 1. Operation and Summary of Significant Accounting Policies and Estimates to the Consolidated Financial Statements in our Annual Report on Form 10-K for the year ended December 31, 2017 describes the significant accounting policies and methods used in the preparation of our Consolidated Financial Statements. Our critical accounting estimates, discussed in the Management's Discussion and Analysis of Financial Condition and Results of Operations in Part II, Item 7 of our Annual Report on Form 10-K for the year ended December 31, 2017, include estimates for allowances for doubtful accounts, determining useful lives for depreciation and amortization, the valuation of assets and liabilities acquired in business combinations, assessing the need for impairment charges for identifiable intangible assets and goodwill, establishing warranty reserves, accounting for income taxes, and assessing excess and obsolete inventories. Such accounting policies and estimates require significant judgments and assumptions to be used in the preparation of the Condensed Consolidated Financial Statements and actual results could differ materially from the amounts reported based on variability in factors affecting these estimates.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Interest Rate Risk

Our market risk exposure relates to changes in interest rates in our investment portfolio. 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 March 31, 2018, our investments consisted of certificates of deposit, with maturities of less than 1 years (see Note 7. Marketable Securities and Assets Measured at Fair Value in Part 1, Item 1 "Unaudited Condensed Consolidated Financial Statements"). As a measurement of the sensitivity of our portfolio and assuming that our investment portfolio balances remain constant, a hypothetical decrease of one percentage point in interest rates would decrease annual pre-tax earnings by a negligible amount.

Table Of Contents

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. Our purchasing and sales activities are primarily denominated in the USD, EUR, JPY, and CNY. 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.

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 many 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.

From time to time, we enter into foreign currency exchange rate contracts with banks 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. We attempt to mitigate 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.

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.

See the "Risk Factors" set forth in Part I, Item 1A of our Annual Report on Form 10-K and Part II, Item 1A of this Form 10-Q for more information about the market risks to which we are exposed. There have been no material changes in our exposure to market risk from December 31, 2017.

ITEM 4. 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 ("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 McGimpsey, Interim 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 March 31, 2018. 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.

Changes in Internal Control over Financial Reporting

There was no change in our internal control over financial reporting that occurred during the fiscal quarter covered by this Form 10-Q that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

PART II OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

We are involved in disputes and legal actions arising in the normal course of our business. There have been no material developments in legal proceedings in which we are involved during the three months ended March 31, 2018. For a description of previously reported legal proceedings refer to Part I, Item 3, "Legal Proceedings" of our Annual Report on Form 10-K for the year ended December 31, 2017.

Table Of Contents

ITEM 1A. RISK FACTORS

Our business, financial condition, operating results and cash flows can be impacted by a number of factors, including, but not limited to, those set forth below, any of which could cause our results to be adversely impacted and could result in a decline in the value or loss of an investment in our common stock. Other factors may also exist that we cannot anticipate or that we currently do not consider to be significant based on information that is currently available. These risks and uncertainties have the potential to materially affect our business, financial condition, results of operations, cash flows and future results. Such risks and uncertainties may also impact the accuracy of forward-looking statements included in this Form 10-Q and other reports we file with the Securities and Exchange Commission.

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, Lockport, New York, Littlehampton, United Kingdom and Shenzhen, PRC. Our thermal instrumentation products that are used in the semiconductor industry are manufactured in Vancouver, Washington and Littlehampton, United Kingdom. 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. Each facility manufactures different products, and therefore, is not interchangeable. Natural, uncontrollable occurrences or other operational issues 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. In particular, for certain higher demand products manufactured out of our Littlehampton, United Kingdom site, we are experiencing longer delivery times and delayed shipments to customers which may continue over the short term. Any potential losses from such occurrences could significantly affect our relationship with customers, operations and results of operations for a prolonged period of time.

Our restructuring and other cost reduction efforts in prior years have included transitioning manufacturing operations to our facility in Shenzhen from other manufacturing facilities, such as Fort Collins, Colorado and Littlehampton, United Kingdom, which renders us increasingly reliant upon our Shenzhen facility. We have been notified that we will be required to relocate our Shenzhen, PRC manufacturing facility by July 2020. 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 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 has been in Shenzhen, PRC; however, we have also added specialized manufacturing at our Littlehampton, United Kingdom, Ronkonkoma, New York and Lockport, New York facilities. From time to time we may be required to relocate manufacturing or migrate manufacturing of specific products between facilities or to third party manufacturers. We have been notified that we will be required to relocate our Shenzhen, PRC manufacturing facility by July 2020. 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.

Table Of Contents

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. If we cannot qualify alternative suppliers before ending supply of critical parts from the sole or limited source suppliers, we may be required to make a last-time-buy(s) and take possession of material amounts of inventory in advance of customer demand. In some instances, the last-time-buy materials required to be purchased may be for several years which in turn exposes us to additional excess and obsolescence risk. If we cannot qualify alternative suppliers before the last-time-buy materials 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.

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.

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. 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.

Newly enacted U.S. government tax reform could have a negative impact on the results of future operations.

On December 22, 2017, the U.S. Tax Cuts and Jobs Act (the "Tax Act") was enacted which contained substantial changes to the Internal Revenue Code, some of which could have an adverse effect on our business. The Tax Act significantly revises the U.S. corporate income tax by, among other things, lowering corporate income tax rates, implementing the territorial tax system and imposing a transition tax on deemed repatriated earnings of our foreign subsidiaries. With the enactment of the Tax Act, our financial results for 2017 included a mandatory one-time estimated income tax expense of approximately $72.9 million resulting from the transition tax and the revaluation of our U.S. deferred tax assets and liabilities to reflect the recently enacted 21% federal corporate tax rate effective January 1, 2018. These estimates are based on our initial analysis of the Tax Act. Given the significant complexity of the Tax Act, anticipated guidance from the Internal Revenue Service about implementing the Tax Act, and the potential for additional guidance from the Securities and Exchange Commission or the Financial Accounting Standards Board related to the Tax Act, these estimates may be adjusted in future periods during 2018.

Significant developments stemming from recent U.S. government actions and proposals concerning tariffs and other economic proposals could have a material adverse effect on us.

Recent U.S. government actions and proposals could impose greater restrictions and economic disincentives on international trade, particularly imports.

One recent action was tariffs on steel and aluminum product imports announced by the U.S. Department of Commerce in March 2018. Proposals to date include possible tariffs on goods imported into the United States, particularly from China, that could increase the cost of imported products. One such proposal was an updated tariffs listing issued by the United Stated Trade Representative ("USTR") which proposed an additional 25% duty on certain goods and parts originating in China that are used in our business in the United States. Any increase in the cost of such goods and parts adversely impact our competitiveness. While the final changes in regulation are not known at this time, any final regulation that adds a cost to imported goods and parts could have a material effect on our costs and net income. Changes in U.S. social, political, regulatory and economic conditions or in laws and policies governing foreign trade, manufacturing, development and investment in the territories and countries where we currently develop and sell products, and any

Table Of Contents

negative sentiments towards the United States as a result of such changes, could adversely affect our business. In addition, negative sentiments towards the United States among non-U.S. customers and among non-U.S. employees or prospective employees would adversely affect sales or hiring and retention, respectively.

Increased governmental action on income tax regulations could negatively impact our business.

International governments have heightened their review and scrutiny of multinational businesses like ours which could increase our compliance costs and future tax liability to those governments. As governments continue to look for ways to increase their revenue streams they could increase audits of companies to accelerate the recovery of monies perceived as owed to them under current or past regulations. Such an increase in audit activity could have a negative impact on companies which operate internationally, as we do.

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

We have completed acquisitions in the past 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.

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 may not 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.

Table Of Contents

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 and tariffs, changes in tax policies, changes in PRC laws and regulations, possible expropriation or other PRC government actions, and unsettled political conditions including potential changes in U.S. policy regarding overseas manufacturing. These factors may have a material adverse effect on our operations, business, results of operations, and financial condition. See "We are exposed to risks associated with worldwide financial markets and the global economy" risk factor below.

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.

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 earnings 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 October 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.

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 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 improve 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.

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.

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.

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

As a supplier to the global semiconductor, flat panel display, solar, industrial 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.

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 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.

Driven by continuing technology migration and changing customers demand the markets we serve are constantly changing in terms of advancement in applications, core technology and competitive pressures. New products we design for capital equipment manufacturers typically have a lifespan of five to ten years. Our success and future growth depends on our products being designed into our customers new generations of equipment as they develop new technologies and applications. We must work with these manufacturers early in their design cycles to modify, enhance and upgrade our products or design new products that meet the requirements of their new systems. The design win process is highly competitive and we may win or lose new design wins for our existing customers or new customers next generations of equipment. In case existing or new customers do not choose our products

Table Of Contents

as a result of the development, evaluation and qualification efforts related to the design win process, our market share will be reduced, the potential revenues related to the lifespan of our customers' products, which can be 5-10 years, will not be realized, and our business, financial condition and results of operations would be materially and adversely impacted.

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 purchase inventory in anticipation of sales that do not materialize, resulting in excess and obsolete inventory write-offs.

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

Our business strategy for many of our product lines has been focused on product performance and technology innovation to provide enhanced efficiencies and productivity. As a result of recent economic conditions and changes in various markets that we serve, our customers have experienced significant cost pressures. 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.

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.

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.

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

Our ten largest customers accounted for 69.6% and 72.2% of our sales for the three months ended March 31, 2018 and 2017, respectively. During the three months ended March 31, 2018, sales to Applied Materials, Inc. and Lam Research were $69.9 million and $39.7 million, respectively. During the three months ended March 31, 2017 sales to Applied Materials, Inc., and Lam Research were $54.5 million and $32.0 million, respectively. A significant decline in sales from either or both of these customers, or the Company's inability to collect on these sales, could materially and adversely impact our business, results of operations and financial condition.

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. The Company intends to utilize its foreign cash to expand our international operations through internal growth and strategic acquisitions. If our intent changes or if these funds are needed for our U.S. operations, or we are negatively impacted by any of the factors above, our financial condition and results of operations could be materially adversely affected.

We are subject to risks inherent in international operations.

Sales to our customers outside the United States were approximately 33.4% and 29.9% of our total sales for the three months ended March 31, 2018 and 2017. The acquisitions of the power controls modules and high and low voltage product lines have increased our presence in international locations. 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 customs audits in various countries that occur from time to time);
- 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 $25.7 million in accounts receivable from foreign customers as of March 31, 2018; 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.

Globalization of sales increases risk of compliance with policy.

We operate in an increasingly complex sales environment around the world which places greater importance on our global control environment and imposes additional oversight risk. Such increased complexity could adversely affect our operating results by increasing compliance costs in the near-term and by increasing the risk of control failures in the event of non-compliance.

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. As a result of the competitive markets we serve, from time to time we may enter into long term pricing agreements with our largest customers that results in reduced product pricing. Such reduced product pricing may result in product margin declines unless we are successful in reducing our product costs ahead of such price reductions. 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 time-line expectations. The potential decrease in cash flow could materially and adversely impact our financial condition.

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 may not be able to protect our intellectual property rights effectively. Additionally, we may not have adequate legal recourse in the event that we encounter infringements of our intellectual property in the PRC.

Table Of Contents

Our legacy inverter products may suffer higher than anticipated litigation, damage or warranty claims.
Our legacy inverter products (of which we discontinued the manufacture, engineering, 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 or to pay damages (including liquidated damages) or warranty claims, and we could suffer significant harm to our reputation. We are experiencing claims from customers and suppliers and in some cases litigation related to the legacy inverter product line. We review such claims and vigorously defend against such lawsuits in the ordinary course of our business. We cannot assure you that any such claims or litigation brought against us will not have a material adverse effect on our business or financial statements. Our involvement in such litigation could result in significant expense to us and divert the efforts of our technical and management personnel. We also 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 "Income (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. See Note 3. Discontinued Operations in Part I, Item 1 "Unaudited Condensed Consolidated Financial Statements" contained herein.
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 recent years, we have experienced increased warranty costs for our legacy inverter product lines, which is reflected in "Income from discontinued operations, net of income taxes." See Note 4. Discontinued Operations in Part I, Item 1 "Unaudited Condensed Consolidated Financial Statements" contained herein.
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. 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 exposures related to likely or pending transactions including those 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.

Recent developments relating to the United Kingdom's referendum vote in favor of leaving the European Union and related actions could adversely affect us.

On June 23, 2016, the United Kingdom (UK) held a referendum in which voters approved an exit from the European Union ("EU"). On March 29, 2017, the UK's ambassador to the EU delivered a letter to the president of the European Council that gave formal notice under Article 50 of the Lisbon Treaty of UK's withdrawal from the EU, commonly referred to as "Brexit". As a result, negotiations have commenced to determine the terms of the UK's withdrawal from the EU as well as its relationship with the EU going forward, including the terms of trade between the UK and the EU. Although it is unknown what those terms will be, it is possible that there will be greater restrictions on imports and exports between the UK and EU countries and increased regulatory complexities. These changes may adversely affect our sales, operations and financial results. In particular, our operations in the UK may be adversely affected by extreme fluctuations in the UK exchange rates. Moreover, the imposition of any import restrictions and duties levied on our UK products as imported for EU customers may make our products more expensive for such customers and less competitive from a pricing perspective.

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 2016, the PRC's currency devalued by a cumulative 6.5% against the U.S. dollar, making Chinese exports cheaper and imports into the PRC more expensive by that amount. This devaluation negatively impacts U.S. businesses that trade with the PRC because it puts them at a cost disadvantage. 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.

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. 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.

Our business is subject to complex and evolving U.S. and international laws and regulations regarding privacy and data protection. Many of these laws and regulations are subject to change and uncertain interpretation and could result in claims, changes to our business practices, penalties, increased cost of operations, or declines in user growth or engagement, or otherwise harm our business.

Regulatory authorities around the world are considering a number of legislative and regulatory proposals concerning data protection, including measures to ensure that encryption of users' data does not hinder law enforcement agencies' access to that data. In addition, the interpretation and application of consumer and data protection laws in the U.S., Europe and elsewhere are often uncertain and in flux. It is possible that these laws may be interpreted and applied in a manner that is inconsistent with our data practices. These legislative and regulatory proposals, if adopted, and such interpretations could, in addition to the possibility of fines, result in an order requiring that we change our data practices, which could have an adverse effect on our business and results of operations. Complying with these various laws could cause us to incur substantial costs or require us to change our business practices in a manner adverse to our business.

Recent legal developments in Europe have created compliance uncertainty regarding certain transfers of personal data from Europe to the United States. For example, the General Data Protection Regulation (GDPR), coming into application in the European Union ("EU") on May 25, 2018, will apply to all of our activities conducted from an establishment in the EU or related to products and services that we offer to EU users. The GDPR will create a range of new compliance obligations, which

Table Of Contents

could cause us to change our business practices, and will significantly increase financial penalties for noncompliance (including possible fines of up to 4% of global annual turnover for the preceding financial year or €20 million (whichever is higher) for the most serious infringements).

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. We may not be successful in retaining our key employees or attracting or retaining 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.

Deterioration of demand for our inverter services could negatively impact our business.

Our business may be adversely affected by changes in national or global demand for our inverter service repair capabilities. Any such changes could adversely affect the carrying amount of our inverter service inventories, thereby negatively affecting our financial results from Continuing 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 of others, 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.

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. 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 15. Pension Liability in Part I, Item 1 "Unaudited Condensed Consolidated Financial Statements" contained herein.

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 March 31, 2018, we have $54.9 million of goodwill and $33.4 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

Table Of Contents

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.

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 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 have to perform sufficient due diligence to determine whether such minerals are used in the manufacture of our products. However, the implementation of these 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 incur 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.

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.

Table Of Contents

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 2.UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS

Sales of Unregistered Securities

None.

Issuer Purchases of Equity Securities

Period	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Program (1)	Approximate Value of Shares that May Yet Be Purchased Under the Program (2)
March 1 - March 31, 2018	180,942	$ 70.47	180,942	$ 57,256,000

(1) 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. In November 2017, our Board of Directors approved an extension of this program until December 31, 2019. In March 2018, we entered into a Share Repurchase Plan and Agreement to repurchase $50.0 million of our common stock through December 31, 2018 subject to certain pricing conditions. Under this plan, we repurchased $12.8 million shares of our common stock in the open market.

(2) The Company has remaining authority to repurchase up to $57.3 million of our common stock. As of March 31, 2018 the company had a $37.2 million remaining amount to repurchase common stock under the March 2018 Share Repurchase Plan and Agreement. The Company has no open commitments or obligations to repurchase any shares of our common stock with the remaining $20.0 million.

Table Of Contents

ITEM 6. EXHIBITS

The exhibits listed in the following Exhibit Index are filed as part of this Quarterly Report on Form 10-Q.

Exhibit Index to Form 10-Q for the Period Ended March 31, 2018

10.1	Offer Letter to Paul Oldham dated March 26, 2018 (incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-26966), filed March 29, 2018).
10.2	Form of Executive Change in Control Agreement (incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-26966), filed March 29, 2018).
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 Chief 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 Quarterly Report on Form 10-Q for the quarter ended March 31, 2018, formatted in XBRL (eXtensible Business Reporting Language): (i) the Condensed Consolidated Statements of Earnings, (ii) the Condensed Consolidated Statements of Comprehensive Earnings, (iii) the Condensed Consolidated Balance Sheets, (iv) the Condensed Consolidated Statements of Cash Flows, (v) the Condensed Consolidated Statements of Stockholders' Equity, and (vi) the Notes to the Condensed Consolidated Financial Statements.

Table Of Contents

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

	ADVANCED ENERGY INDUSTRIES, INC.
Dated: April 30, 2018	/s/ Thomas McGimpsey
	Thomas McGimpsey
	Interim Chief Financial Officer, Executive Vice President, General Counsel & Corporate Secretary