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

FORM 10-Q

☑ **QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934.**

For the quarterly period ended June 30, 2019

or

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934.**

For the transition period from ____ to ____

Commission file number: 000-26966

ADVANCED ENERGY INDUSTRIES, INC.

(Exact name of registrant as specified in its charter)

Delaware	**84-0846841**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
1625 Sharp Point Drive, Fort Collins, CO	**80525**
(Address of principal executive offices)	(Zip Code)

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

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, $0.001 par value	**AEIS**	**NASDAQ Global Select Market**

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

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§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 ☑ No ☐

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

Large accelerated filer ☑	Accelerated filer ☐	Non-accelerated filer ☐ (Do not check if a smaller reporting company)	Smaller reporting company ☐	Emerging growth company ☐

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. ☐

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

As of August 1, 2019, there were 38,308,569 shares of the registrant's Common Stock, par value $0.001 per share, outstanding.

ADVANCED ENERGY INDUSTRIES, INC.
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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)

	June 30, 2019	December 31, 2018
ASSETS		
Current assets:		
Cash and cash equivalents	$ 359,070	$ 349,301
Marketable securities	746	2,470
Accounts and other receivable, net of allowances of $2,012 and $1,856 respectively	93,045	100,442
Inventories	92,740	97,987
Income taxes receivable	4,578	2,220
Other current assets	12,776	10,173
Current assets from discontinued operations	67	5,855
Total current assets	563,022	568,448
Property and equipment, net	34,692	31,269
Operating lease right-of-use assets	52,465	—
Deposits and other assets	11,404	6,874
Goodwill	91,637	101,900
Intangible assets, net	68,243	54,910
Deferred income tax assets	40,464	47,099
Non-current assets from discontinued operations	3,841	5,984
TOTAL ASSETS	$ 865,768	$ 816,484
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 37,281	$ 39,646
Income taxes payable	6,592	13,258
Accrued payroll and employee benefits	20,302	21,775
Other accrued expenses	17,063	22,999
Customer deposits and other	4,875	7,345
Current portion of operating lease liability	9,572	—
Current liabilities from discontinued operations	812	5,286
Total current liabilities	96,497	110,309
Operating lease liability	44,419	—
Deferred income tax liabilities	10,397	6,988
Uncertain tax positions	10,160	14,318
Long term deferred revenue	8,472	29,108
Other long-term liabilities	37,418	37,744
Non-current liabilities from discontinued operations	2,356	10,715
Total liabilities	209,719	209,182
Commitments and contingencies (Note 19)		
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; 38,305 and 38,164 issued and outstanding, respectively	38	38
Additional paid-in capital	100,512	97,418
Accumulated other comprehensive loss	(4,871)	(3,449)
Retained earnings	559,839	512,783
Advanced Energy stockholders' equity	655,518	606,790
Noncontrolling interest	531	512
Total stockholders' equity	656,049	607,302
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	$ 865,768	$ 816,484

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

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

	Three Months Ended June 30, 2019	Three Months Ended June 30, 2018	Six Months Ended June 30, 2019	Six Months Ended June 30, 2018
Sales, net:				
Product	$ 106,193	$ 169,235	$ 218,305	$ 340,444
Services	28,617	26,797	57,248	51,205
Total sales, net	134,810	196,032	275,553	391,649
Cost of sales:				
Product	56,113	80,953	116,914	160,759
Services	14,571	13,844	28,773	26,010
Total cost of sales	70,684	94,797	145,687	186,769
Gross profit	64,126	101,235	129,866	204,880
Operating expenses:				
Research and development	21,840	19,195	43,129	36,832
Selling, general and administrative	27,612	24,758	56,626	53,406
Amortization of intangible assets	1,874	1,264	3,847	2,521
Restructuring expense	1,795	—	3,468	—
Total operating expenses	53,121	45,217	107,070	92,759
Operating income	11,005	56,018	22,796	112,121
Other income (expense), net	15,545	(485)	16,288	(459)
Income from continuing operations, before income taxes	26,550	55,533	39,084	111,662
Provision for income taxes	3,177	9,133	324	18,892
Income from continuing operations	23,373	46,400	38,760	92,770
Income from discontinued operations, net of income taxes	8,324	5	8,315	145
Net income	$ 31,697	$ 46,405	$ 47,075	$ 92,915
Income from continuing operations attributable to noncontrolling interest	11	44	19	75
Net income attributable to Advanced Energy Industries, Inc.	$ 31,686	$ 46,361	$ 47,056	$ 92,840
Basic weighted-average common shares outstanding	38,274	39,349	38,236	39,484
Diluted weighted-average common shares outstanding	38,462	39,603	38,443	39,807
Earnings per share:				
Continuing operations:				
Basic earnings per share	$ 0.61	$ 1.18	$ 1.01	$ 2.35
Diluted earnings per share	$ 0.61	$ 1.17	$ 1.01	$ 2.33
Discontinued operations:				
Basic earnings per share	$ 0.22	$ —	$ 0.22	$ —
Diluted earnings per share	$ 0.22	$ —	$ 0.22	$ —
Net income:				
Basic earnings per share	$ 0.83	$ 1.18	$ 1.23	$ 2.35
Diluted earnings per share	$ 0.82	$ 1.17	$ 1.22	$ 2.33

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

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

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	**2018**	**2019**	**2018**
Net income	$ 31,697	$ 46,405	$ 47,075	$ 92,915
Other comprehensive income:				
Foreign currency translation	543	(6,416)	(1,432)	(3,944)
Minimum benefit retirement liability, net of income taxes	63	132	10	(36)
Comprehensive income	$ 32,303	$ 40,121	$ 45,653	$ 88,935
Comprehensive income attributable to noncontrolling interest	11	44	19	75
Comprehensive income attributable to Advanced Energy Industries, Inc.	$ 32,292	$ 40,077	$ 45,634	$ 88,860

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

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

	Common Stock			Accumulated Other Comprehensive Income (Loss)				
	Shares	Amount	Additional Paid-in Capital	Foreign Currency Translation	Minimum Benefit Retirement Liability	Retained Earnings	Non-controlling Interest	Total Stockholders' Equity
Balances, December 31, 2017	39,604	$ 40	$ 184,843	$ 4,695	$ (2,162)	$ 333,225	$ —	$ 520,641
Adoption of new accounting standards	—	—	—	—	—	19,706	—	19,706
Non-controlling interest from acquisition	—	—	—	—	—	—	431	431
Stock issued from equity plans	113	—	(4,127)	—	—	—	—	(4,127)
Stock-based compensation	—	—	4,494	—	—	—	—	4,494
Stock buyback	(181)	—	(12,750)	—	—	—	—	(12,750)
Comprehensive income (loss):								
Foreign currency translation	—	—	—	2,472	—	—	—	2,472
Minimum benefit retirement liability	—	—	—	—	(168)	—	—	(168)
Net income	—	—	—	—	—	46,479	31	46,510
Total comprehensive income (loss)	—	—	—	2,472	(168)	46,479	31	48,814
Balances, March 31, 2018	39,536	$ 40	$ 172,460	$ 7,167	$ (2,330)	$ 399,410	$ 462	$ 577,209
Stock issued from equity plans	111	—	1,552	—	—	—	—	1,552
Stock-based compensation	—	—	1,943	—	—	—	—	1,943
Stock buyback	(407)	(1)	(25,308)	—	—	—	—	(25,309)
Comprehensive income (loss):								
Foreign currency translation	—	—	—	(6,416)	—	—	—	(6,416)
Minimum benefit retirement liability	—	—	—	—	132	—	—	132
Net income	—	—	—	—	—	46,361	44	46,405
Total comprehensive income (loss)	—	—	—	(6,416)	132	46,361	44	40,121
Balances, June 30, 2018	39,240	$ 39	$ 150,647	$ 751	$ (2,198)	$ 445,771	$ 506	$ 595,516
Balances, December 31, 2018	38,164	$ 38	$ 97,418	$ (590)	$ (2,859)	$ 512,783	$ 512	$ 607,302
Stock issued from equity plans	72	—	(1,707)	—	—	—	—	(1,707)
Stock-based compensation	—	—	3,199	—	—	—	—	—
Comprehensive income (loss):								
Foreign currency translation	—	—	—	(1,975)	—	—	—	(1,975)
Minimum benefit retirement liability	—	—	—	—	(53)	—	—	(53)
Net income	—	—	—	—	—	15,370	8	15,378
Total comprehensive income (loss)	—	—	—	(1,975)	(53)	15,370	8	13,350
Balances at March 31, 2019	38,236	$ 38	$ 98,910	$ (2,565)	$ (2,912)	$ 528,153	$ 520	$ 622,144
Stock issued from equity plans	69	—	665	—	—	—	—	665
Stock-based compensation	—	—	937	—	—	—	—	937
Comprehensive income (loss):								
Foreign currency translation	—	—	—	543	—	—	—	543
Minimum benefit retirement liability	—	—	—	—	63	—	—	63
Net income	—	—	—	—	—	31,686	11	31,697
Total comprehensive income (loss)	—	—	—	543	63	31,686	11	32,303
Balances at June 30, 2019	38,305	$ 38	$ 100,512	$ (2,022)	$ (2,849)	$ 559,839	$ 531	$ 656,049

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

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

	Six Months Ended June 30, 2019	Six Months Ended June 30, 2018
CASH FLOWS FROM OPERATING ACTIVITIES:		
Net income	$ 47,075	$ 92,915
Income from discontinued operations, net of income taxes	8,315	145
Income from continuing operations, net of income taxes	38,760	92,770
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation and amortization	8,396	5,917
Stock-based compensation expense	4,136	6,437
Provision for deferred income taxes	4,509	(96)
Gain on sale of central inverter service business	(14,804)	—
Net loss on disposal of assets	90	158
Changes in operating assets and liabilities, net of assets acquired:		
Accounts and other receivable, net	6,554	(8,816)
Inventories	1,030	(31,620)
Other assets	(6,852)	1,739
Accounts payable	(2,680)	8,555
Other liabilities and accrued expenses	(7,627)	5,029
Income taxes	(13,182)	7,831
Net cash provided by operating activities from continuing operations	18,330	87,904
Net cash used in operating activities from discontinued operations	(1,914)	(2,450)
Net cash provided by operating activities	16,416	85,454
CASH FLOWS FROM INVESTING ACTIVITIES:		
Purchases of marketable securities	—	(91)
Proceeds from sale of marketable securities	1,742	4
Acquisitions, net of cash acquired	—	(9,072)
Issuance of notes receivable	(2,800)	—
Purchases of property and equipment	(8,866)	(9,426)
Net cash used in investing activities from continuing operations	(9,924)	(18,585)
CASH FLOWS FROM FINANCING ACTIVITIES:		
Purchase and retirement of common stock	—	(38,059)
Net payments related to stock-based award activities	(1,042)	(2,576)
Net cash used in financing activities from continuing operations	(1,042)	(40,635)
EFFECT OF CURRENCY TRANSLATION ON CASH	(932)	(1,160)
INCREASE IN CASH AND CASH EQUIVALENTS	4,518	25,074
CASH AND CASH EQUIVALENTS, beginning of period	354,552	415,037
CASH AND CASH EQUIVALENTS, end of period	359,070	440,111
Less cash and cash equivalents from discontinued operations	—	7,112
CASH AND CASH EQUIVALENTS FROM CONTINUING OPERATIONS, end of period	$ 359,070	$ 432,999
SUPPLEMENTAL DISCLOSURE OF CASH FLOW INFORMATION:		
Cash paid for interest	$ 298	$ 114
Cash paid for income taxes	11,933	12,216
Cash received for refunds of income taxes	1,536	703
Cash held in banks outside the United States	185,012	262,064

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 precision power products that transform, refine, and modify the raw electrical power from the utility and convert it into various types of highly-controllable usable power that is predictable, repeatable and customizable. Our power solutions enable innovation in complex semiconductor and thin film plasma processes such as dry etch, strip, chemical and physical deposition, high and low voltage applications such as process control, analytical instrumentation and medical equipment, and in temperature-critical thermal applications such as material and chemical processing. We also supply related instrumentation products for advanced temperature measurement and control, electrostatic instrumentation products for test and measurement applications, and gas sensing and monitoring solutions for multiple industrial markets. Our network of service support centers provide local repair and field service capability in key regions as well as provide upgrades and refurbishment services, and sales of used equipment to businesses that use our products. As of December 31, 2015, we discontinued our engineering, production, and sales of our Inverter product line. As such, all Inverter product revenues, costs, assets and liabilities are reported in Discontinued Operations for all periods presented herein, and we currently report as a single unit. See *Note 4. Disposed and Discontinued Operations* for more information. Ongoing inverter repair and service operations are reported as part of our continuing 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 June 30, 2019, and the results of our operations and cash flows for the three and six months ended June 30, 2019 and 2018.

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, 2018 and other financial information filed with the SEC.

Estimates and Assumptions

The preparation of our Consolidated Financial Statements in conformity with U.S. GAAP requires us to make estimates, assumptions and judgments that affect the reported amounts of assets and liabilities, and disclosure of contingent 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, right-of-use assets and related liabilities, acquisitions, asset valuations, asset life, depreciation, amortization, recoverability of assets, impairments, deferred revenue, stock option and restricted stock grants, taxes, and other provisions are reasonable, based upon information available at the time they are made. Actual results may differ from these estimates, making it possible that a change in these estimates could occur in the near term.

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, 2018. See *Note 16. Leases* for the updated policies related to the implementation of ASU 2016-02, "Leases (Topic 842)."

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

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 June 2016, the FASB issued ASU 2016-13, "Financial Instruments—Credit Losses (Topic 326)", Measurement of Credit Losses on Financial Instruments ("ASU 2016-13"). This ASU changes the methodology for measuring credit losses on financial instruments and the timing of when such losses are recorded. ASU 2016-13 is effective for fiscal years, and interim periods within those years, beginning after December 15, 2019. Early adoption is permitted for fiscal years, and interim periods within those years, beginning after December 15, 2018. We are currently assessing the impact ASU 2016-13 will have on our Consolidated Financial Statements.

In August 2018, the FASB issued ASU 2018-13, "Fair Value Measurement (Topic 820)" ("ASU 2018-13"). ASU 2018-13 modifies the disclosure requirements on fair value measurements in Topic 820, Fair Value Measurement, based on the concepts in the Concepts Statement, including the consideration of costs and benefits. ASU 2018-13 is effective for fiscal years ending after December 15, 2019 and shall be applied to all periods presented on a retrospective basis. Early adoption is permitted. We are currently assessing and do not believe ASU 2018-13 will have a significant impact on our fair value measurements disclosure requirements.

In August 2018, the FASB issued ASU 2018-14, "Compensation—Retirement Benefits—Defined Benefit Plans—General (Subtopic 715-20)" ("ASU 2018-14"). ASU 2018-14 eliminates requirements for certain disclosures and requires additional disclosures under defined benefit pension plans and other post-retirement plans. ASU 2018-14 is effective for fiscal years ending after December 15, 2020 and shall be applied to all periods presented on a retrospective basis. Early adoption is permitted. We are currently assessing and do not believe ASU 2018-14 will have a significant impact on our defined benefit plan disclosure requirements.

Recently adopted accounting pronouncements

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 the Tax Act to retained earnings. ASU 2018-02 is effective for fiscal years beginning after December 15, 2018, including interim periods within those years. We adopted ASU 2018-02 during the first quarter of fiscal year 2019 which did not materially impact on our Consolidated Financial Statements.

In June 2018, the FASB issued ASU 2018-07, "Compensation-Stock Compensation (Topic 718)", Improvements to Non-employee Share-based Payments (“ASU 2018-07”). This ASU expands the scope of Topic 718 to include share-based payment transactions for acquiring goods and services from non-employees. ASU 2018-07 is effective for fiscal years beginning after December 15, 2018. The new guidance is required to be applied retrospectively with the cumulative effect recognized at the date of initial application. We adopted ASU 2018-07 during the first quarter of fiscal year 2019 which did not materially impact on our Consolidated Financial Statements.

In August 2017, the FASB issued ASU 2017-12, "Derivatives and Hedging (Topic 815)", Targeted Improvements to Accounting for Hedging Activities ("ASU 2017-12"). This ASU simplifies certain aspects of hedge accounting and results in a more accurate portrayal of the economics of an entity’s risk management activities in its financial statements. ASU 2017-12 is effective for fiscal years beginning after December 15, 2018, and the interim periods within those fiscal years. We adopted ASU 2017-12 during the first quarter of fiscal year 2019 using the modified retrospective basis. The adoption of the provisions of ASU 2017-12 did not materially impact the Company’s Consolidated Balance Sheet or Statement of Operations.

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

In February 2016, the FASB issued ASU 2016-02, "Leases (Topic 842)," to increase transparency and comparability among organizations by recognizing lease right-of-use 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 within the year of adoption. We adopted ASU 2016-02 using the modified retrospective approach and recorded $38.2 million of operating lease right-of-use assets and $38.4 million of operating lease liabilities as the cumulative-effect in the first quarter of fiscal year 2019. As of June 30, 2019, we have recorded $52.5 million of operating lease right-of-use assets and $54.0 million of operating lease liabilities. The adoption of ASU 2016-02 did not materially impact the Company's Consolidated Statement of Operations or Consolidated Statement of Cash Flows for the period ended June 30, 2019.

NOTE 2. BUSINESS ACQUISITIONS

Artesyn's Embedded Power Business

In May 2019, we entered into a Stock Purchase Agreement ("Acquisition Agreement") to acquire Artesyn Embedded Technologies, Inc.'s ("Artesyn") Embedded Power business. Pursuant to the Acquisition Agreement, seller and Artesyn have agreed to complete a business reorganization transaction (the "Corporate Reorganization") whereby Artesyn's embedded computing and consumer businesses would be divested from Artesyn. Following the completion of the Corporate Reorganization, we would acquire Artesyn's remaining embedded power business through the acquisition of all Artesyn's issued and outstanding shares from seller for a base purchase price of $400.0 million consisting of approximately $364.0 million in cash and the assumption of approximately $36.0 million of liabilities, subject to final adjustments, including working capital as of the closing.

Completion of the acquisition of Artesyn is subject to customary closing conditions, including (i) the completion of the Corporate Reorganization, (ii) the absence of injunctions or other legal restraints prohibiting the transaction, (iii) expiration or early termination of any regulatory waiting periods and receipt of required regulatory approvals, (iv) and other conditions such as, absence of a material adverse effect and accuracy of representations and warranties provided.

Our obligations under the Acquisition Agreement are not subject to any financing condition; however, if we are unable to obtain the requisite financing to complete the acquisition of Artesyn's issued and outstanding shares, a $20.0 million reverse break fee may be due and payable to the seller.

In connection with the Acquisition Agreement, we entered into a non-binding commitment letter (the "Commitment Letter") for senior unsecured debt dated as of May 14, 2019, with Bank of America, N.A. and other financial institutions (together the "Commitment Parties"), pursuant to which the Commitment Parties have committed to provide the Company with debt financing in the aggregate principal amount of up to $500.0 million, consisting of a $350.0 million senior unsecured term loan A facility, with a term of 5 years, and $150.0 million of a senior unsecured revolving facility.

The Commitment Parties' obligations under the Commitment Letter are subject to certain conditions, including the completion of the acquisition of Artesyn, the negotiation and execution of definitive documentation consistent with the Commitment Letter; delivery of certain financial information, the absence of a material adverse event, accuracy of specified representations and warranties and other customary closing conditions.

LumaSense Technologies Holdings, Inc.

In September 2018, we acquired LumaSense Technologies Holdings, Inc. ("LumaSense"), a privately held company with primary operations in Santa Clara, California, Frankfurt, Germany, and Ballerup, Denmark for a net purchase price of $84.7 million in cash.

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 our acquisition is as follows:

	LumaSense
Cash paid for acquisition	$ 94,946
Cash acquired	(10,262)
Total fair value of consideration transferred	$ 84,684

The following table summarizes estimated fair values of the assets acquired and liabilities assumed from our acquisition, including measurement period adjustments:

	Preliminary: September 1, 2018	Measurement Period Adjustments	Adjusted: September 1, 2018
Accounts and other receivable, net	$ 7,167	$ -	$ 7,167
Inventories	9,372	-	9,372
Property and equipment	1,353	-	1,353
Goodwill	48,032	(10,215)	37,817
Intangible assets	26,000	17,240	43,240
Deferred income tax assets	8,116	(1,785)	6,331
Other assets	5,126	-	5,126
Total assets acquired	105,166	5,240	110,406
Accounts payable	5,734	-	5,734
Deferred income tax liabilities	7,984	3,769	11,753
Other liabilities	6,764	1,471	8,235
Total liabilities assumed	20,482	5,240	25,722
Total fair value of net assets acquired	$ 84,684	$ -	$ 84,684

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

	LumaSense	Amortization Method	Useful Life
Technology	$ 35,530	Straight-line	15
Customer relationships	4,360	Straight-line	10
Tradename	3,350	Straight-line	10
Total	$ 43,240		

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. The goodwill represents expected operating synergies from combining operations with the acquired companies and the estimated value associated with the enhancements to our comprehensive product lines. During the six months ended June 30, 2019, we adjusted the estimated values of the assets acquired and liabilities assumed based upon the preliminary valuation report. These adjustments included additional liabilities, changes to deferred taxes and changes in the allocation of excess purchase price between goodwill and intangibles. Advanced Energy is in the process of finalizing the assessment of fair value for the assets acquired and liabilities assumed related to the LumaSense acquisition.

Pro forma results for Advanced Energy Inc. giving effect to the LumaSense Technologies Holdings, Inc. Transaction

The following unaudited pro forma financial information presents the combined results of operations of Advanced Energy Inc. and LumaSense as if the acquisitions had been completed as of the beginning of the prior fiscal year, or January 1, 2018. The unaudited pro forma financial information is presented for informational purposes and is not indicative of the results of operations that would have been achieved if the acquisitions had taken place on January 1, 2018, nor are they indicative of future results.

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

The unaudited pro forma financial information for the three and six months ended June 30, 2019 includes Advanced Energy's results, including the post-acquisition results of LumaSense, since September 1, 2018. The unaudited pro forma financial information for the three and six months ended June 30, 2018 combines Advanced Energy's results with the pre-acquisition results of LumaSense for that period.

The following tables present our unaudited pro forma results for the acquisition of LumaSense:

	Three Months Ended June 30,			
	2019		2018	
	As Reported	Pro Forma	As Reported	Pro Forma
Total sales	$ 134,810	$ 134,810	$ 196,032	$ 210,866
Net income attributable to Advanced Energy Industries, Inc.	$ 31,686	$ 32,839	$ 46,361	$ 46,375
Earnings per share:				
Basic earnings per share	$ 0.83	$ 0.86	$ 1.18	$ 1.18
Diluted earnings per share	$ 0.82	$ 0.85	$ 1.17	$ 1.17

	Six Months Ended June 30,			
	2019		2018	
	As Reported	Pro Forma	As Reported	Pro Forma
Total sales	$ 275,553	$ 275,553	$ 391,649	$ 421,331
Net income attributable to Advanced Energy Industries, Inc.	$ 47,056	$ 48,401	$ 92,840	$ 92,684
Earnings per share:				
Basic earnings per share	$ 1.23	$ 1.27	$ 2.35	$ 2.35
Diluted earnings per share	$ 1.22	$ 1.26	$ 2.33	$ 2.33

The unaudited pro forma results for all periods presented include adjustments made to account for certain costs and transactions that would have been incurred had the acquisitions been completed as of January 1, 2018. These adjustments including amortization charges for acquired intangible assets, adjustments for acquisition transaction costs and amortization of purchased gross profit. These adjustments are net of any applicable tax impact and were included to arrive at the pro forma results above.

LumaSense's operating results have been included in the Advanced Energy's operating results for the periods subsequent to the completion of the acquisition on September 1, 2018. During the three months ended June 30, 2019, LumaSense contributed total sales of $11.8 million and net income of $1.7 million. During the six months ended June 30, 2019, LumaSense contributed total sales of $23.8 million and net income of $2.6 million.

NOTE 3. REVENUE

Revenue Recognition

We recognize revenue when we have satisfied our performance obligations which typically occurs when control of the products or services have been transferred 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 is less than 1 year. These costs are included in selling, general, and administrative expenses.

(in thousands except per share data)

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 technology 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 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 services group offers warranty and after-market 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 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, Singapore 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 is recognized ratably over the underlying terms as we do not have historical information which would allow us to project the estimated service usage pattern at this time. In May 2019, we sold our grid-tied central inverter repair and service operation to a third party. In connection with this sale, approximately $22.0 million of deferred revenue related to extended warranties and service contracts, were transferred to the buyer. See *Note 4. Disposed and Discontinued Operations* for additional information in relation to this sale. We have deferred revenue related to our extended warranties and service contracts totaling $9.9 million as of June 30, 2019 and $33.4 million as of December 31, 2018. We are expected to recognize between less than $0.1 million and $1.0 million per year through year 2035.

Disaggregation of Revenue

The following table presents our net sales by product line:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	**2018**	**2019**	**2018**
Semiconductor equipment	$ 65,086	$ 127,291	$ 132,600	$ 263,301
Industrial technology equipment	41,107	41,944	85,705	77,143
Service	28,617	26,797	57,248	51,205
Total	$ 134,810	$ 196,032	$ 275,553	$ 391,649

ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)
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The following table presents our net sales by geographic region:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
North America	$ 61,393	$ 101,942	$ 119,899	$ 209,839
Asia	50,962	70,165	109,397	136,329
Europe	22,092	23,815	45,518	45,264
Other Countries	363	110	739	217
Total	$ 134,810	$ 196,032	$ 275,553	$ 391,649

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 June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Product and service revenue recognized at point in time	$ 134,297	$ 195,089	$ 274,137	$ 389,772
Extended warranty and service contracts recognized over time	513	943	1,416	1,877
Total	$ 134,810	$ 196,032	$ 275,553	$ 391,649

NOTE 4. DISPOSED AND DISCONTINUED OPERATIONS

Disposed Operations

In May 2019, we sold our grid-tied central solar inverter services business to Bold Renewables Holdings, LLC (“Buyer”) for $1.00 dollar and assumption of our initial product warranty and our extended warranty service obligations. In connection with this transaction, we entered into a Loan and Security Agreement with the Buyer. Under this agreement, we initially loaned $2.8 million to the buyer at closing and have made available an additional $5.25 million that may be borrowed in the future, subject to certain operating and liquidity covenants, for operating needs over the next ten years. The borrowings under the Loan and Security Agreement bear interest at 0% for the first seven years and 5% thereafter. Additionally, the Loan and Security Agreement provides for early payment discounts of 50% during the first three years, 45% for years four and five and 40% thereafter up to 30 days prior to the maturity of the Loan and Security Agreement. A discount on the initial $2.8 million funding under the Loan and Security Agreement of $2.3 million has been recognized as a reduction to the gain recognized on the sale. As a result of the transaction, we reduced our liabilities held in discontinued operations approximately $10.9 million related to initial product warranty and reduced Other liabilities of our continuing operations of approximately $22.0 million related to extended warranty service obligations as well as other assets and liabilities associated with the continuing grid-tied central solar inverter service and repair business. A $14.8 million non-cash gain was recognized in Other income (expense) from continuing operations and an $8.6 million non-cash gain, net of tax expense of $2.4 million, was recognized in Income from discontinued operations.

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 (loss) 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.

(in thousands except per share data)

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

	Three Months Ended June 30, 2019	Three Months Ended June 30, 2018	Six Months Ended June 30, 2019	Six Months Ended June 30, 2018
Sales	$ —	$ —	$ —	$ —
Cost of sales	(200)	(200)	(200)	(88)
Total operating expense	381	92	381	31
Operating income (loss) from discontinued operations	(181)	108	(181)	57
Other income (expense)	10,923	(127)	10,919	(3)
Income (loss) from discontinued operations before income taxes	10,742	(19)	10,738	54
Provision (benefit) for income taxes	2,418	(24)	2,423	(91)
Income from discontinued operations, net of income taxes	$ 8,324	$ 5	$ 8,315	$ 145

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

	June 30, 2019	December 31, 2018
Cash and cash equivalents	$ —	$ 5,251
Other current assets	—	406
Inventories	67	198
Current assets of discontinued operations	$ 67	$ 5,855
Other assets	$ —	$ 67
Deferred income tax assets	3,841	5,917
Non-current assets of discontinued operations	$ 3,841	$ 5,984
Accounts payable and other accrued expenses	$ 348	$ 350
Accrued warranty	464	4,936
Current liabilities of discontinued operations	$ 812	$ 5,286
Accrued warranty	$ 2,210	$ 10,429
Other liabilities	146	286
Non-current liabilities of discontinued operations	$ 2,356	$ 10,715

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 June 30, 2019	Three Months Ended June 30, 2018	Six Months Ended June 30, 2019	Six Months Ended June 30, 2018
Income from continuing operations, before income taxes	$ 26,550	$ 55,533	$ 39,084	$ 111,662
Provision for income taxes	3,177	9,133	324	18,892
Effective tax rate	12.0 %	16.4 %	0.8 %	16.9 %

ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)
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Our effective tax rates differ from the U.S. federal statutory rate of 21% for the three and six months ended June 30, 2019 and 2018, respectively, primarily due to the benefit of earnings in foreign jurisdictions which are subject to lower tax rates, partially offset by additional GILTI tax in the U.S. The effective tax rate for the first half of 2019 was lower than the same period in 2018 primarily due to the release of liabilities for uncertain tax positions in the first quarter of 2019 based on the completion of additional procedures during the quarter to support a change in facts with respect to a specific prior period position.

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 and six months ended June 30, 2019 and 2018:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Income from continuing operations	$ 23,373	$ 46,400	$ 38,760	$ 92,770
Income from continuing operations attributable to noncontrolling interest	11	44	19	75
Income from continuing operations attributable to Advanced Energy Industries, Inc.	$ 23,362	$ 46,356	$ 38,741	$ 92,695
Basic weighted-average common shares outstanding	38,274	39,349	38,236	39,484
Assumed exercise of dilutive stock options and restricted stock units	188	254	207	323
Diluted weighted-average common shares outstanding	38,462	39,603	38,443	39,807
Continuing operations:				
Basic earnings per share	$ 0.61	$ 1.18	$ 1.01	$ 2.35
Diluted earnings per share	$ 0.61	$ 1.17	$ 1.01	$ 2.33

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

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Restricted stock units	29	6	—	2

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 of the share repurchase program to December 2019 from its original maturity of March 2018. In May 2018 our Board of Directors approved a $50 million increase in its authorization to repurchase shares of Company common stock under this same program. As of June 30, 2019, we had $24.9 million remaining for the future repurchase of shares of our common stock.

ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)
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In order to execute the repurchase of shares of our common stock, the company periodically enters into stock repurchase agreements. During the three and six months ended June 30, 2019 and 2018, the company has repurchased the following shares of common stock:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Amount paid to repurchase shares	$ —	$ 25,309	$ —	$ 38,059
Number of shares repurchased	—	407	—	588
Average repurchase price per share	$ —	$ 62.13	$ —	$ 64.70

There were no shares repurchased from related parties. All shares repurchased were recognized as a reduction to Additional paid-in capital. Repurchased shares were retired and assumed the status of authorized and unissued shares.

NOTE 7. MARKETABLE SECURITIES AND ASSETS MEASURED AT FAIR VALUE

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

Our marketable securities consist of certificates of deposit as follows:

	June 30, 2019		December 31, 2018	
	Cost	Fair Value	Cost	Fair Value
Total marketable securities	$ 744	$ 746	$ 2,463	$ 2,470

The maturities of our marketable securities available for sale as of June 30, 2019 are as follows:

	Earliest		Latest
Certificates of deposit	7/28/2019	to	4/30/2020

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 June 30, 2019, 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 June 30, 2019 and December 31, 2018. 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 June 30, 2019 and December 31, 2018.

June 30, 2019	Level 1	Level 2	Level 3	Total
Total marketable securities	$ —	$ 746	$ —	$ 746

December 31, 2018	Level 1	Level 2	Level 3	Total
Total marketable securities	$ —	$ 2,470	$ —	$ 2,470

There were no transfers in or out of Level 1, 2, or 3 fair value measurements during three and six months ended June 30, 2019.

NOTE 8. DERIVATIVE FINANCIAL INSTRUMENTS

We are impacted by changes in foreign currency exchange rates. We may manage these risks through the use of derivative financial instruments, primarily forward contracts with banks for one-month periods. These forward contracts 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. We did not enter into any new foreign currency exchange forward contracts during the three and six months ended June 30, 2019 and 2018. We did not have any currency exchange rate contracts outstanding as of June 30, 2019 and 2018.

(in thousands except per share data)

During the three and six months ended June 30, 2019 and 2018 the gains and losses recorded related to the foreign currency exchange contracts are as follows:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Foreign currency loss from foreign currency exchange contracts	$ —	$ —	$ —	$ (750)

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, net, in our Unaudited Condensed Consolidated Statements of Operations.

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:

	June 30, 2019	December 31, 2018
Amounts billed, net	$ 77,958	$ 80,709
Unbilled receivables	15,087	19,733
Total receivables, net	$ 93,045	$ 100,442

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 are as follows:

	June 30, 2019	December 31, 2018
Parts and raw materials	$ 69,995	$ 76,647
Work in process	8,498	6,644
Finished goods	14,247	14,696
Total	$ 92,740	$ 97,987

ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)
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NOTE 11. PROPERTY AND EQUIPMENT

Property and equipment, net is comprised of the following:

	June 30, 2019	December 31, 2018
Buildings and land	$ 1,693	$ 1,737
Machinery and equipment	42,962	41,330
Computer and communication equipment	25,812	24,051
Furniture and fixtures	3,931	3,203
Vehicles	282	282
Leasehold improvements	22,025	20,593
Construction in process	2,781	867
	99,486	92,063
Less: Accumulated depreciation	(64,794)	(60,794)
Property and equipment, net	$ 34,692	$ 31,269

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

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Depreciation expense	$ 2,341	$ 1,792	$ 4,549	$ 3,396

NOTE 12. GOODWILL

The following summarizes the changes in goodwill during the six months ended June 30, 2019:

	Beginning Balance	Adjustments	Effect of Changes in Exchange Rates	Ending Balance
June 30, 2019	$ 101,900	$ (10,215)	$ (48)	$ 91,637

NOTE 13. INTANGIBLE ASSETS

Intangible assets consisted of the following as of June 30, 2019 and December 31, 2018:

June 30, 2019	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Technology	$ 55,365	$ (10,009)	$ 45,356
Customer relationships	33,832	(15,168)	18,664
Trademarks and other	5,843	(1,620)	4,223
Total	$ 95,040	$ (26,797)	$ 68,243

December 31, 2018	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Technology	$ 39,879	$ (7,927)	$ 31,952
Customer relationships	35,509	(13,484)	22,025
Trademarks and other	2,501	(1,568)	933
Total	$ 77,889	$ (22,979)	$ 54,910

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

Amortization expense related to intangible assets is as follows:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Amortization expense	$ 1,874	$ 1,264	$ 3,847	$ 2,521

Estimated amortization expense related to intangibles is as follows:

Year Ending December 31,	
2019 (remaining)	$ 4,467
2020	7,395
2021	7,294
2022	7,033
2023	7,014
Thereafter	35,040
Total	$ 68,243

NOTE 14. RESTRUCTURING COSTS

During 2018, we committed to a restructuring plan to optimize our manufacturing footprint and to improve our operating efficiencies and synergies related to our recent acquisitions. The table below summarizes the restructuring charges:

	Three Months Ended June 30, 2019	Six Months Ended June 30, 2019	Cumulative Cost Through June 30, 2019
Severance and related charges	$ 1,565	$ 1,718	$ 5,957
Facility relocation and closure charges	230	1,750	1,750
Total restructuring charges	$ 1,795	$ 3,468	$ 7,707

The following table summarizes our restructuring liabilities at June 30, 2019:

	Balance at December 31, 2018	Cost Incurred and Charged to Expense	Cost Paid or Otherwise Settled	Effect of Changes in Exchange Rates	Balance at June 30, 2019
Total restructuring liabilities	$ 3,806	$ 3,468	$ (3,799)	$ 1	$ 3,476

As of December 31, 2018 and June 30, 2019 the accrued restructuring liabilities related primarily to severance and related charges.

NOTE 15. 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 and configuration.

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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 June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Balances at beginning of period	$ 2,264	$ 2,084	$ 2,084	$ 2,312
Acquired warranty	1,200	—	1,200	92
Increases to accruals	85	306	604	484
Warranty expenditures	(286)	(396)	(631)	(902)
Effect of changes in exchange rates	—	(13)	6	(5)
Balances at end of period	$ 3,263	$ 1,981	$ 3,263	$ 1,981

NOTE 16. LEASES

We lease manufacturing and office space under non-cancelable operating leases. Some of these leases contain provisions for landlord funded leasehold improvements which are recorded as right of use assets with related liabilities. Additionally, several existing operating leases had deferred rent balances under ASC 840 which resulted in adjusted right of use asset balances recorded upon adoption of ASC 842. Most leases include one or more options to renew. We regularly evaluate the renewal options and when they are reasonably certain of exercise, we include the renewal period in our lease terms, along with the right-of-use assets ("ROU") and lease liabilities. In many cases, we have lease terms that are less than one year and therefore, we have elected the practical expedient to exclude these short-term leases from our ROU assets and lease liabilities. New leases are negotiated and executed to meet business objectives on an on-going basis.

Our leases do not provide an implicit rate. Accordingly, we use our incremental borrowing rate based on the information available at the lease commencement date in determining the present value of the lease payments. We have a centrally managed treasury function; therefore, based on the applicable lease terms and the current economic environment, we apply a portfolio approach for determining the incremental borrowing rate.

Maturities of our lease liabilities for all operating leases at June 30, 2019 are as follows:

Year Ending December 31,	
2019 (remaining)	$ 5,045
2020	9,094
2021	9,012
2022	6,320
2023	4,908
Thereafter	29,274
Total lease payments	$ 63,653
Less: Interest	(9,662)
Present value of lease liabilities	$ 53,991

The weighted average remaining lease term and discount rate for all our operating leases as of June 30, 2019 were as follows:

	Weighted Average Remaining Lease Term	Weighted Average Discount Rate
Operating leases	8.43 years	3.75 %

(in thousands except per share data)

Cash paid for amounts included in the measurement of lease liabilities for the six months ended June 30, 2019 was as follows:

	Cash Outflow
Operating leases	$ 5,914

NOTE 17. PENSION LIABILITY

In connection with the acquisition of HiTek Power Group and LumaSense, we acquired the HiTek Power Limited Pension Scheme (the "HiTek Plan") and the LumaSense Technologies GmbH pension obligation (the "LumaSense Plan"), respectively. These plans are both closed to new participants. 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 $0.8 million into the HiTek Plan through April 30, 2024, and then $1.7 million from May 1, 2024 through November 30, 2033. We are not currently committed to future payments to the LumaSense Plan.

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

	June 30, 2019	December 31, 2018
Pension liability	$ 19,084	$ 19,266

The following table sets forth the components of net periodic pension cost for the three and six months ended June 30, 2019 and 2018:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Interest cost	$ 195	$ 214	$ 394	$ 432
Expected return on plan assets	(166)	(158)	(336)	(319)
Amortization of actuarial gains and losses	115	133	233	269
Net periodic pension cost	$ 144	$ 189	$ 291	$ 382

NOTE 18. 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 June 30, 2019, there were 3.1 million shares reserved and 2.3 million shares available for grant under the 2017 Plan.

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 generally 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.

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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 and six months ended June 30, 2019 and 2018 was as follows:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Stock-based compensation expense	$ 937	$ 1,943	$ 4,136	$ 6,437

Changes in the outstanding RSU awards during the three and six months ended June 30, 2019 were as follows:

	Three Months Ended June 30, 2019		Six Months Ended June 30, 2019	
	Number of RSUs	Weighted-Average Grant Date Fair Value	Number of RSUs	Weighted-Average Grant Date Fair Value
RSUs outstanding at beginning of period	577	$ 56.73	352	$ 58.17
RSUs granted	27	$ 51.88	358	$ 51.93
RSUs vested	(49)	$ 59.70	(145)	$ 52.04
RSUs forfeited	(2)	$ 55.62	(12)	$ 35.28
RSUs outstanding at end of period	553	$ 56.23	553	$ 56.23

Changes in the outstanding stock option awards during the three and six months ended June 30, 2019 were as follows:

	Three Months Ended June 30, 2019		Six Months Ended June 30, 2019	
	Number of Options	Weighted-Average Exercise Price per Share	Number of Options	Weighted-Average Exercise Price per Share
Options outstanding at beginning of period	220	$ 21.21	230	$ 20.73
Options exercised	(6)	$ 12.87	(16)	$ 11.45
Options expired	(1)	$ 7.95	(1)	$ 7.82
Options outstanding at end of period	213	$ 21.50	213	$ 21.50

NOTE 19. COMMITMENTS AND CONTINGENCIES

We have firm purchase commitments and agreements with various suppliers to ensure the availability of components. Purchase commitments as of June 30, 2019 is approximately $108.4 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 and six months ended June 30, 2019.

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

NOTE 20. 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 and six months ended June 30, 2019 and 2018, we engaged in the following transactions with companies related to members of our Board of Directors, as described below:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Sales to related parties	$ 660	$ 316	$ 1,012	$ 389
Number of related party customers	1	1	1	1

Our accounts receivable balance from related party customers with outstanding balances as of June 30, 2019 and December 31, 2018 is as follows:

	June 30, 2019	December 31, 2018
Accounts receivable from related parties	$ 429	$ 109
Number of related party customers	1	1

NOTE 21. 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 and six months ended June 30, 2019 and 2018:

	Three Months Ended June 30,			
	2019		2018	
Applied Materials, Inc.	$ 33,731	25.0 %	$ 67,741	34.6 %
LAM Research	19,802	14.7 %	32,764	16.7 %

	Six Months Ended June 30,			
	2019		2018	
Applied Materials, Inc.	$ 70,021	25.4 %	$ 137,613	35.1 %
LAM Research	39,373	14.3 %	72,490	18.5 %

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 June 30, 2019 and December 31, 2018:

	June 30, 2019		December 31, 2018	
Applied Materials, Inc.	$ 24,130	25.9 %	$ 34,301	34.2 %
LAM Research	11,953	12.8 %	12,181	12.1 %

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 22. 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 on July 28, 2022. Interest on amounts drawn shall be paid quarterly based upon the LIBOR Daily

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

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 June 30, 2019, the interest rate was 3.65%. 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 June 30, 2019, the Company is in compliance with all covenants required under the Loan Agreement. At June 30, 2019 our credit availability under the Loan Agreement was $150.0 million.

Interest expense related to unused line of credit fees was as follows:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Unused line of credit fees	$ 58	$ 58	$ 114	$ 114

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, 2018. We undertake no obligation to revise or update any forward-looking statements for any reason.

BUSINESS AND MARKET OVERVIEW

Semiconductor Equipment Market

The semiconductor market is being driven by the rapid adoption of solid-state drives (SSD) deploying the latest 3D-NAND memory devices and a ramp of advanced Logic devices at the 10nm technology node. The industry's transition to 3D memory devices and advanced Logic is generating demand for more advanced RF power supplies, matches and accessories. The growing number of steps associated with the deposition and etch processes is driving an increase in the number of process chambers per fab and higher content of more advanced power solutions per chamber. As etching processes become more challenging due to increasing aspect ratios in advanced 3D devices, more advanced RF technology that includes pulsing and increased control and instrumentation is needed. We are capitalizing on these trends and providing a broader range of more complex combinations of RF power and frequencies and launching more capable matching networks to manage and control the delivered power.

Following record revenues in the first half of 2018, we began to see a pause in the semiconductor equipment market during the second half of 2018. Investment in semiconductor equipment, especially from memory devices, continued to weaken in the first half of 2019 as a result of slowing growth in end market demand for semiconductor devices, ongoing digestion of equipment capacity, and consumption of existing inventory. It is difficult to determine when or if overall market investment in semiconductor capital equipment will return to 2017 levels.

Industrial Technology Equipment Markets

Customers in the industrial capital equipment market incorporate our industrial process power and applied power products into a wide variety of equipment used in applications such as thin films, advanced material fabrication, and analytical instrumentation. Demand levels for our industrial technology products have been effected in the first half of 2019 by slower demand related to flat panel displays, hard coating for consumer electronic devices and weaker macro economic conditions, particularly in Europe, partially offset by strengthening demand for solar applications.

In industrial technology applications, we remain focused on taking our products into new applications and world regions, increasing our penetration into Asia, Europe and North America. Our acquisition of LumaSense in September 2018 further expanded our presence in pyrometry and other temperature measurement applications and has contributed to our year-to-date growth in industrial technology applications as compared to the prior year.

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 tables set forth certain data, and the percentage of sales each item reflects, derived from our Unaudited Condensed Consolidated Statements of Operations for the periods indicated (in thousands):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Sales	$ 134,810	$ 196,032	$ 275,553	$ 391,649
Gross profit	64,126	101,235	129,866	204,880
Operating expenses	53,121	45,217	107,070	92,759
Operating income from continuing operations	11,005	56,018	22,796	112,121
Other income (expense), net	15,545	(485)	16,288	(459)
Income from continuing operations before income taxes	26,550	55,533	39,084	111,662
Provision for income taxes	3,177	9,133	324	18,892
Income from continuing operations, net of income taxes	$ 23,373	$ 46,400	$ 38,760	$ 92,770

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Sales	100.0 %	100.0 %	100.0 %	100.0 %
Gross profit	47.6	51.6	47.1	52.3
Operating expenses	39.4	23.0	38.9	23.7
Operating income from continuing operations	8.2	28.6	8.3	28.6
Other income (expense), net	11.5	(0.3)	5.9	(0.1)
Income from continuing operations before income taxes	19.7	28.3	14.2	28.5
Provision for income taxes	2.4	4.6	0.1	4.8
Income from continuing operations, net of income taxes	17.3 %	23.7 %	14.1 %	23.7 %

SALES

The following tables summarize net sales and percentages of net sales, by product line, for the three and six months ended June 30, 2019 and 2018:

	Three Months Ended June 30,		Change 2019 v. 2018	
	2019	2018	Dollar	Percent
Semiconductor equipment	$ 65,086	$ 127,291	$ (62,205)	(48.9)%
Industrial technology equipment	41,107	41,944	(837)	(2.0)%
Service	28,617	26,797	1,820	6.8 %
Total	$ 134,810	$ 196,032	$ (61,222)	(31.2)%

	Six Months Ended June 30,		Change 2019 v. 2018	
	2019	2018	Dollar	Percent
Semiconductor equipment	$ 132,600	$ 263,301	$ (130,701)	(49.6)%
Industrial technology equipment	85,705	77,143	8,562	11.1 %
Service	57,248	51,205	6,043	11.8 %
Total	$ 275,553	$ 391,649	$ (116,096)	(29.6)%

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Semiconductor equipment	48.3 %	64.9 %	48.1 %	67.2 %
Industrial technology equipment	30.5	21.4	31.1	19.7
Service	21.2	13.7	20.8	13.1
Total	100.0 %	100.0 %	100.0 %	100.0 %

Total Sales

Sales decreased $61.2 million, or 31.2%, to $134.8 million for the three months ended June 30, 2019 and $116.1 million, or 29.6% for the six months ended June 30, 2019 as compared to the same periods in 2018. The decrease in sales, for both periods, is due to the overall decline in demand in the semiconductor capital equipment market, which was partially offset by increased sales, for the six months ended June 30, 2019, in our industrial markets. Sales for the three and six months ended June 30, 2019 includes $11.8 million and $23.8 million, respectively, associated with our recent acquisition of LumaSense.

Sales in the semiconductor equipment market decreased $62.2 million, or 48.9%, for the three months ended June 30, 2019 and decreased $130.7 million, or 49.6% for the six months ended June 30, 2019, as compared to the same periods in 2018. The decrease in sales during 2019 is due to an overall pause in production and demand for semiconductor equipment used in deposition and etch applications, related to advanced memory, and the timing of new technology investment.

Sales in the industrial technology markets remained relatively flat for the three months ended June 30, 2019 as compared to the same period in 2018 and increased $8.6 million, or 11.1% for the six months ended June 30, 2019, as compared to the same period in 2018. The thin film and specialty power industrial markets we serve include solar panel, flat panel display, architectural glass, consumer electronics, power control modules, data storage, high voltage and other industrial manufacturing markets. Our customers in these markets are primarily global and regional original equipment manufacturers.

Service sales increased $1.8 million, or 6.8%, for the three months ended June 30, 2019 and $6.0 million or 11.8% for the six months ended June 30, 2019 as compared to the same periods in 2018. Sales of our central grid-tied inverter products, which we disposed of during the quarter, was $0.6 million and $2.0 million for the three months ended June 30, 2019 and 2018, respectively, and was $2.5 million and $3.8 million for the six months ended June 30, 2019 and 2018, respectively. Our service group provides ongoing maintenance services for our customers as well as warranty and repair services and spare parts sales. The growth in our services is attributable to growth in our installed base as well as certain market gains.

Backlog

Our backlog was $57.1 million at June 30, 2019 as compared to $74.7 million at December 31, 2018. Backlog declined primarily due to slowing demand in the semiconductor market.

GROSS PROFIT

For the three months ended June 30, 2019, gross profit decreased $37.1 million to $64.1 million, or 47.6% of sales, as compared to gross profit of $101.2 million, or 51.6% of sales, for the same period in 2018. Gross profit for the six months ended June 30, 2019 was $129.9 million, or 47.1% of sales, as compared to gross profit of $204.9 million, or 52.3% of sales, for the same period in 2018. The decrease in gross profit as a percent of revenue is due to reduced operating leverage on lower volume, product mix and higher freight and customs costs. Gross profit for the three and six months ended June 30, 2019 includes $7.9 million and $15.4 million, respectively, from our recent acquisition of LumaSense.

OPERATING EXPENSE

Operating expenses increased $7.9 million to $53.1 million, or 39.4% of sales, for the three months ended June 30, 2019 from $45.2 million, or 23.0% of sales, for the same period in 2018. Operating expenses increased $14.3 million to $107.1 million, or 38.9% of sales, for the six months ended June 30, 2019, from $92.8 million, or 23.7% of sales, for the same period in 2018.

The following tables summarize our operating expenses as a percentage of sales for the periods indicated:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Research and development	$ 21,840	$ 19,195	$ 43,129	$ 36,832
Selling, general, and administrative	27,612	24,758	56,626	53,406
Amortization of intangible assets	1,874	1,264	3,847	2,521
Restructuring charges	1,795	—	3,468	—
Total operating expenses	$ 53,121	$ 45,217	$ 107,070	$ 92,759

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Research and development	16.2 %	9.8 %	15.7 %	9.4 %
Selling, general, and administrative	20.5	12.6	20.5	13.7
Amortization of intangible assets	1.4	0.6	1.4	0.6
Restructuring charges	1.3	—	1.3	—
Total operating expenses	39.4 %	23.0 %	38.9 %	23.7 %

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 $2.6 million and $6.3 million for the three and six months ended June 30, 2019, respectively, compared to the same periods in 2018. The increase in research and development expense is due to increased headcount and material costs as we invest in new programs to maintain and increase our technological leadership and provide solutions to our customers' evolving needs. Research and development for the three and six months ended June 30, 2019 includes $1.9 million and $4.2 million, respectively, from our recent acquisition of LumaSense.

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 $2.9 million and $3.2 million for the three and six months ended June 30, 2019, respectively, compared to the same periods in 2018. Selling, general and administrative expenses for the three and six months ended June 30, 2019 includes $2.7 million and $6.2 million, respectively, from our recent acquisition of LumaSense. Selling, general and administrative expenses excluding LumaSense, increased $0.2 million and decreased $3.0 million for the three and six months ended June 30, 2019, respectively, and was predominately due to reductions in payroll related costs, travel and other outside services as we were able to implement certain cost containment measures while still preserving recent infrastructure investment in personnel and geographic footprint.

Restructuring

In connection with the restructuring actions management previously put in place to optimize our manufacturing footprint to lower-cost regions, and improvements in operating efficiencies and synergies related to our recent acquisitions, during the three and six months ended June 30, 2019, we recognized $1.8 million and $3.5 million, respectively, in restructuring charges primarily related to employee termination benefits and recognition of excess lease space as we optimize our facility footprint. Additionally, during the same time periods, we paid approximately $0.9 million and $1.9 million, respectively, in severance related costs.

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 $15.5 million and $16.3 million for the three and six ended June 30, 2019, respectively, and includes a gain on the sale of our central inverter service and repair business of $14.8 million. Other income (expense) excluding the effect of the sale of the central inverter service and repair business was $0.7 million and $1.5 million for the three and six months ended June 30, 2019, respectively, compared to $(0.5) million for the same periods in 2018. The increase in other income is primarily due to improved interest earnings as a result of improved focus on investment management of our excess cash.

Provision for Income Taxes

Our effective tax rates differ from the U.S. federal statutory rate of 21% for the three and six months ended June 30, 2019 and 2018, respectively, primarily due to the benefit of earnings in foreign jurisdictions which are subject to lower tax rates, partially offset by additional GILTI tax in the U.S. The effective tax rate for the first quarter of 2019 was lower than the same period in 2018 primarily due to the release of liabilities for uncertain tax positions in 2019 based on the completion of additional procedures during the quarter to support a change in facts with respect to a specific prior period position.

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.

Results of Discontinued Operations

We completed the wind down of our inverter engineering, manufacturing and sales product lines in December 2015. Accordingly, the inverter product lines are 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 in 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.

Income from discontinued operations, net of income taxes are as follows (in thousands):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Sales	$ —	$ —	$ —	$ —
Cost of sales	(200)	(200)	(200)	(88)
Total operating expense	381	92	381	31
Operating income (loss) from discontinued operations	(181)	108	(181)	57
Other income (expense)	10,923	(127)	10,919	(3)
Income (loss) from discontinued operations before income taxes	10,742	(19)	10,738	54
Provision (benefit) for income taxes	2,418	(24)	2,423	(91)
Income from discontinued operations, net of income taxes	$ 8,324	$ 5	$ 8,315	$ 145

In May 2019, we sold our grid-tied central solar inverter repair and service operation. In conjunction with the sale, the initial product warranty for the previously sold grid-tied central solar inverters was transferred to the buyer. Accordingly, a gain of $11.0 million and tax expense of $2.4 million was recognized in Other income (expense) and Provision (benefit) for income taxes in our discontinued operations for the three and six months ended June 30, 2019. Operating income from discontinued operations for the three and six months ended June 30, 2019 and 2018 also includes the impacts of changes in our estimated product warranty liability, the recovery of accounts receivable and foreign exchange gain or (losses).

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 stock-based compensation and amortization of intangible assets, as well as discontinued operations, and non-recurring items such as acquisition-related costs and restructuring expenses. 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 June 30, 2019	Three Months Ended June 30, 2018	Six Months Ended June 30, 2019	Six Months Ended June 30, 2018
Gross profit from continuing operations, as reported	$ 64,126	$ 101,235	$ 129,866	$ 204,880
Adjustments to gross profit:				
Stock-based compensation	55	149	288	500
Facility expansion and relocation costs	150	249	320	249
Non-GAAP gross profit	64,331	101,633	130,474	205,629
Operating expenses from continuing operations, as reported	53,121	45,217	107,070	92,759
Adjustments:				
Amortization of intangible assets	(1,874)	(1,264)	(3,847)	(2,521)
Stock-based compensation	(883)	(1,794)	(3,848)	(5,937)
Acquisition-related costs	(1,531)	(255)	(3,042)	(605)
Facility expansion and relocation costs	—	(13)	(74)	(489)
Restructuring charges	(1,795)	—	(3,468)	—
Non-GAAP operating expenses	47,038	41,891	92,791	83,207
Non-GAAP operating income	$ 17,293	$ 59,742	$ 37,683	$ 122,422

Reconciliation of Non-GAAP measure - operating expenses and operating income from continuing operations, excluding certain items	Three Months Ended June 30, 2019	Three Months Ended June 30, 2018	Six Months Ended June 30, 2019	Six Months Ended June 30, 2018
Gross profit from continuing operations, as reported	47.6 %	51.6 %	47.1 %	52.3 %
Adjustments to gross profit:				
Stock-based compensation	—	0.1	0.1	0.1
Facility expansion and relocation costs	0.1	0.1	0.1	0.1
Non-GAAP gross profit	47.7	51.8	47.3	52.5
Operating expenses from continuing operations, as reported	39.4	23.1	38.9	23.7
Adjustments:				
Amortization of intangible assets	(1.4)	(0.6)	(1.4)	(0.6)
Stock-based compensation	(0.7)	(1.1)	(1.4)	(1.6)
Acquisition-related costs	(1.1)	(0.1)	(1.2)	(0.2)
Facility expansion and relocation costs	—	—	—	(0.1)
Restructuring charges	(1.3)	—	(1.3)	—
Non-GAAP operating expenses	34.9	21.3	33.6	21.2
Non-GAAP operating income	12.8 %	30.5 %	13.7 %	31.3 %

Reconciliation of Non-GAAP measure - income from continuing operations, excluding certain items	Three Months Ended June 30, 2019	Three Months Ended June 30, 2018	Six Months Ended June 30, 2019	Six Months Ended June 30, 2018
Income from continuing operations, less non-controlling interest, net of income taxes	$ 23,362	$ 46,356	$ 38,741	$ 92,695
Adjustments:				
Amortization of intangible assets	1,874	1,264	3,847	2,521
Acquisition-related costs	1,531	255	3,042	605
Facility expansion and relocation costs	150	262	394	738
Restructuring charges	1,795	—	3,468	—
Tax Cuts and Jobs Act Impact	—	—	—	1,853
Central inverter services business sale	(14,804)	—	(14,804)	—
Tax effect of non-GAAP adjustments	2,536	(238)	1,685	(547)
Non-GAAP income, net of income taxes, excluding stock-based compensation	16,444	47,899	36,373	97,865
Stock-based compensation, net of taxes	722	1,477	3,185	4,937
Non-GAAP income, net of income taxes	$ 17,166	$ 49,376	$ 39,558	$ 102,802
Non-GAAP diluted earnings per share	$ 0.45	$ 1.25	$ 1.03	$ 2.58

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 June 30, 2019, we had $359.8 million in cash, cash equivalents, and marketable securities. In addition to available cash, cash equivalents, and marketable securities, we have a revolving line of credit ("LOC") with a bank which provides up to $150.0 million subject to certain funding conditions and expiring in July 2022. At June 30, 2019, we had $150.0 million in available funding under the LOC. For more information on the LOC, see *Note 22. Credit Facility* in Part I, Item 1 "Unaudited Condensed Consolidated Financial Statements" contained herein.

In May 2019, we announced our execution of a Purchase and Sale Agreement, whereby, upon closing, we will acquire all the outstanding shares of Artesyn Technology, Inc for a base purchase price of $400.0 million. We currently have a non-binding commitment letter from a Bank to provide a senior unsecured credit facility of up to $500.0 million, consisting of $350.0 million of a senior unsecured Term Loan A facility and 150.0 million of a senior unsecured revolving facility which would replace our existing $150.0 million revolving facility. In accordance with the non-binding commitment letter, the credit facility would expire 5 years from the date of initial funding. We plan to execute the credit facility immediately in advance of closing the Artesyn Technology, Inc. Purchase and Sale Agreement.

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 and in May 2018, approved a $50 million increase in its authorization to repurchase shares of Company common stock under this same program. As of June 30, 2019, we had $24.9 million remaining for the future repurchase of our stock.

In order to execute the repurchase of shares of common stock, the Company periodically enters into stock repurchase agreements. During the three and six months ended June 30, 2019 and 2018, the Company has repurchased the following shares of common stock (in thousands, except per share amounts):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Amount paid to repurchase shares	$ —	$ 25,309	$ —	$ 38,059
Number of shares repurchased	—	407	—	588
Average repurchase price per share	$ —	$ 62.13	$ —	$ 64.70

We believe that our current and available cash levels, available credit facility, future execution of new credit facility, as well as our cash generated from future operations, will be adequate to meet anticipated working capital requirements, capital expenditures, contractual obligations, share repurchase programs, and additional acquisitions during the next twelve months. We may, however, depending upon the number or size of additional acquisitions, seek additional financing from time to time.

CASH FLOWS

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

	Six Months Ended June 30, 2019	Six Months Ended June 30, 2018
Net cash provided by operating activities from continuing operations	$ 18,330	$ 87,904
Net cash used in operating activities from discontinued operations	(1,914)	(2,450)
Net cash provided by operating activities	16,416	85,454
Net cash used in investing activities from continuing operations	(9,924)	(18,585)
Net cash used in financing activities from continuing operations	(1,042)	(40,635)
EFFECT OF CURRENCY TRANSLATION ON CASH	(932)	(1,160)
INCREASE IN CASH AND CASH EQUIVALENTS	4,518	25,074
CASH AND CASH EQUIVALENTS, beginning of period	354,552	415,037
CASH AND CASH EQUIVALENTS, end of period	359,070	440,111
Less cash and cash equivalents from discontinued operations	—	7,112
CASH AND CASH EQUIVALENTS FROM CONTINUING OPERATIONS, end of period	$ 359,070	$ 432,999

2019 CASH FLOWS COMPARED TO 2018

Net cash provided by operating activities

Net cash provided by operating activities for the six months ended June 30, 2019 was $16.4 million, as compared to $85.5 million for the same period in 2018. The decrease of $69.0 million in net cash flows from operating activities, as compared to the same period in 2018, is due to overall decreases in sales to the semiconductor equipment market resulting in decreased earnings from continuing operations.

Net cash used in investing activities

Net cash used in investing activities for the six months ended June 30, 2019 was $9.9 million, as compared to $18.6 million for the same period in 2018 which included $9.1 million used in the acquisitions of Trek and the Monroe electrostatic product line.

Net cash used in financing activities

Net cash used in financing activities for the six months ended June 30, 2019 was $1.0 million, as compared to $40.6 million for the same period in 2018 which included $38.1 million for the repurchase of company stock.

Effect of currency translation on cash

During the six months ended June 30, 2019, currency translation had a $0.9 million unfavorable impact as compared to a $1.2 million unfavorable impact during the same period in 2018. 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"), Danish Krone ("DKK"), Euro ("EUR"), Pound Sterling ("GBP"), Israeli New Shekel ("ILS"), Indian Rupee ("INR"), Japanese Yen ("JPY"), South Korean Won ("KRW"), Singapore Dollar ("SGD") 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 six months ended June 30, 2019 and 2018 are as follows:

From	To	Six Months Ended June 30, 2019	2018
CAD	USD	2.5 %	(4.4)%
CHF	USD	(0.4)%	(1.5)%
CNY	USD	(0.3)%	(1.7)%
DKK	USD	(1.3)%	N/A
EUR	USD	(1.3)%	(2.5)%
GBP	USD	(0.5)%	(2.1)%
ILS	USD	4.3 %	N/A
INR	USD	0.1 %	(6.8)%
JPY	USD	1.8 %	1.7 %
KRW	USD	(5.1)%	(4.2)%
SGD	USD	— %	(1.9)%
TWD	USD	(2.2)%	(2.6)%

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, 2018 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, 2018, 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 June 30, 2019, our investments consisted of certificates of deposit, with maturities of less than 1 year and money market deposits (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 if our investment portfolio balances remain constant, a hypothetical decrease of one percentage point in interest rates would decrease annual pre-tax earnings by an immaterial amount.

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 USD, CNY, EURO, and JPY. 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 may 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 these contract instruments for risk management purposes only. We do not enter 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 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, 2018.

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 (Paul Oldham, 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 June 30, 2019. 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 three and six months ended June 30, 2019 and 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, 2018.

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.

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 enough 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. For example, following record levels in the first half of 2018, the semiconductor equipment market began to decline and AE’s revenue from the semiconductor market is down 49.6% during the first half of 2019. We do not know how long this downturn will last or if the market will recover to previous levels.

Deterioration of economic conditions could negatively impact our business.

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

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

- negatively impact global demand for our products, which could result in a reduction of sales, operating income and cash flows;
- make it more difficult or costly for us to obtain financing for our operations or investments or to refinance our debt in the future;

- cause our lenders to depart from prior credit industry practice and make more difficult or expensive the granting of any technical or other waivers under our debt agreements to the extent we may seek them in the future;
- decrease the value of our investments; and
impair the financial viability of our insurers.

Artesyn Acquisition Risk

In May 2019, we entered into a Stock Purchase Agreement ("Transaction") with Artesyn Embedded Technologies, Inc., a Florida Corporation ("Artesyn"), Pontus Holdings, LLC, a Delaware limited liability company ("Parent"), and Pontus Intermediate Holdings II, LLC, a Delaware limited liability company ("Seller") to acquire Artesyn's Embedded Power business. The completion of the Transaction is subject to customary closing conditions, including (i) the completion of a Corporate Reorganization, (ii) the absence of injunctions or other legal restraints prohibiting the Transactions, (iii) expiration or early termination of any regulatory waiting periods and receipt of required regulatory approvals, (iv) the absence of a material adverse effect on Artesyn and (vii) the absence of any action by a governmental entity challenging the Transaction. The Company's obligations under the Acquisition Agreement are not subject to any financing condition; however, if the Company is unable to obtain the requisite financing to consummate the Transaction, a $20 million reverse break fee may be due and payable by the Company to Parent and Seller.

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 are imposing greater restrictions and economic disincentives on international trade, particularly imports. The U.S. government has adopted changes, and intends to adopt further changes, to trade policy and in some cases, to renegotiate, or potentially terminate, certain existing bilateral or multi-lateral trade agreements. It has also initiated the imposition of additional tariffs on certain foreign goods, including steel and aluminum, semiconductor manufacturing equipment and spare parts thereof.

Examples of recent actions are tariffs on steel and aluminum product imports announced by the U.S. Department of Commerce in March 2018 and a 25% tariff on certain products that originate in China announced by the United States Trade Representative ("USTR") in June 2018. The USTR also announced in June and July 2018 two additional supplemental lists of products that are subject to tariffs if the goods imported into the United States originate in China, which would increase the cost of imported products. These supplemental lists issued by the USTR issued an additional 25% and 10% duty, respectively, on certain semiconductor equipment and parts originating in China that are sold by us or used in our business in the United States. In August, the second list was made effective with a 25% tariff and in September the third list was made effective with a 10% tariff. Any increase in the cost of importing such goods and parts could decrease our margins, reduce the competitiveness of our products, or inhibit our ability to sell products or purchase necessary parts, which could have a material adverse effect on our business results, results of operations, or financial condition.

Changes in U.S. trade policy could result in one or more U.S. trading partners adopting responsive trade policy making it more difficult or costly for us to export our products to those countries. As indicated above, these measures could also result in increased costs for goods imported into the U.S. This in turn could require us to increase prices to our customers which may reduce demand, or, if we are unable to increase prices, result in lowering our margin on goods and services sold. To the extent that trade tariffs and other restrictions imposed by the U.S. increase the price of semiconductor equipment and related parts imported into the U.S., the cost of our materials may be adversely affected and the demand from customers for products and services may be diminished, which could adversely affect our revenues and profitability.

We cannot predict future trade policy, the terms of any renegotiated trade agreements or additional imposed tariffs and their impact on our business. The adoption and expansion of trade restrictions, the occurrence of a trade war, or other governmental action related to tariffs or trade agreements or policies has the potential to adversely impact demand for our products, our costs, our customers, our suppliers, and the U.S. economy, which in turn could adversely impact our business, financial condition and results of operations.

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 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 could adversely affect sales or hiring and retention, respectively.

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.

We are subject to risks inherent in international operations.

Sales to our customers outside the United States were approximately 56.8% and 46.7% of our total sales for the six months ended June 30, 2019 and 2018, respectively. 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 enough 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 $20.0 million in accounts receivable from foreign customers as of June 30, 2019; 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.

Our product lines are manufactured only at 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 and Lockport, New York, Littlehampton, United Kingdom and Shenzhen, PRC. Our thermal instrumentation products are manufactured in Vancouver, Washington, Santa Clara, California, Littlehampton, United Kingdom and Frankfurt, Germany. Our pyrometry solutions are manufactured in Ballerup, Denmark. 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. Any potential losses from such occurrences could significantly affect our relationship with customers, operations and results of operations for a prolonged period. As a result, we have begun investing in the evaluation of additional production options in Southeast Asia. We believe this investment will help to mitigate our exposure to regional risks, improve our business continuity profile and lower costs over time.

Our restructuring and other cost reduction efforts have included transitioning manufacturing operations to our facility in Shenzhen from other manufacturing facilities, such as Fort Collins, Colorado and Littlehampton, 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 December 2021. 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, Ballerup, Denmark, Frankfurt, Germany, Ronkonkoma and Lockport, New York and Santa Clara, California 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 December 2021. 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. In addition, we are evaluating establishing a second factory in southeast Asia to help mitigate business continuity, geopolitical and other risks. If we do not successfully implement this factory it could result in increased expenses and disruption of supply to our customers during the transition period.

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 operation;

- 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.
- the impact of geopolitical issues or tariffs that could affect the cost and availability of required parts, components, or subassemblies.

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 enough raw materials, parts, components, or subassemblies, on favorable terms or at all, to fulfill the excess demand.

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.

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 several other countries are actively considering changes in this regard.

Changes in our provision for income taxes or adverse outcomes resulting from examination of our income tax returns could adversely affect our results

Our provision for income taxes is subject to volatility and could be adversely affected by earnings being lower than anticipated in countries that have lower tax rates and higher than anticipated in countries that have higher tax rates; by changes in the valuation of our deferred tax assets and liabilities; by changes, regulations, and interpretations of foreign-derived intangible income (FDII), global intangible low-tax income (GILTI) and base erosion and anti-abuse tax laws (BEAT); by expiration of or lapses in tax incentives; by transfer pricing adjustments, including the effect of acquisitions on our legal structure; by tax effects of nondeductible compensation; by tax costs related to intercompany realignments; by changes in accounting principles; or by changes in tax laws and regulations, treaties, or interpretations thereof, including changes to the taxation of earnings of our foreign subsidiaries, the deductibility of expenses attributable to foreign income, and the foreign tax credit rules. Significant judgment is required to determine the recognition and measurement attribute prescribed in the accounting guidance for uncertainty in income taxes. The Organisation for Economic Co-operation and Development (OECD), an international association comprised of 36 countries, including the United States, has made changes to numerous long-standing tax principles. There can be no assurance that these changes, once adopted by countries, will not have an adverse impact on our provision for income taxes. Further, as a result of certain of our ongoing employment and capital investment actions and commitments, our income in certain countries is subject to reduced tax rates. Our failure to meet these commitments could adversely impact our provision for income taxes. In addition, we are subject of regular examination of our income tax returns by tax authorities. We regularly assess the likelihood of adverse outcomes resulting from these examinations to determine the adequacy of our provision for income taxes. There can be no assurance that the outcomes from these continuous examinations will not have an adverse effect on our operating results and financial condition.

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.

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 depend 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 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 five to ten 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 51.4% and 66.2% of our sales for the six months ended June 30, 2019 2018, respectively. During the six months ended June 30, 2019, sales to Applied Materials, Inc. and Lam Research were $70.0 million and $39.4 million, respectively. During the six months ended June 30, 2018 sales to Applied Materials, Inc., and Lam Research were $137.6 million and $72.5 million, respectively. Applied Material, Inc. had a $24.1 million and $34.3 million accounts receivable balance as of June 30, 2019 and December 31, 2018, respectively. Lam Research had a $12.0 million and $12.2 million accounts receivable balance as of June 30, 2019 and December 31, 2018, respectively. A significant decline in sales from either or both 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.

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 must make and the competitive nature of our markets, we may not be able to reduce our expenses in an amount enough 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 if we encounter infringements of our intellectual property in the PRC.

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 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 4. Disposed and 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. Disposed and 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. 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 like other major currencies. Any change in the value of the Chinese yuan may impact our ability to control the cost of our products in the world market. Specifically, the decision by the 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 several 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"), effective in the EU starting on May 25, 2018, applies to all our activities conducted from an establishment in the EU or related to products and services that we offer to EU users. The GDPR creates a range of new compliance obligations, which 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. Our success in hiring and retaining employees depends on a variety of factors, including the attractiveness of our compensation and benefit programs, global economic or political and industry conditions, our organizational structure, our reputation, culture and working environment, competition for talent and the availability of qualified employees, the availability of career development opportunities, and our ability to offer a challenging and rewarding work environment. We must develop our personnel to provide succession plans capable of maintaining continuity during the inevitable unpredictability of personnel retention. While we have plans for key management succession and long-term compensation plans designed to retain our senior employees, if our succession plans do not operate effectively, our business could be adversely affected.

We have 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 our pension plan.

We currently have unfunded obligations to our pension plans. 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 17. 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 June 30, 2019, we have $91.6 million of goodwill and $68.2 million in intangible assets. We periodically review the estimated useful lives of our identifiable intangible assets, taking into consideration any events or circumstances that might result in either a diminished fair value, or for intangible assets, a revised useful life. The events and circumstances include significant changes in the business climate, legal factors, operating performance indicators, and competition. Any impairment or revised useful life could have a material and adverse effect on our financial position and results of operations and could harm the trading price of our common stock.

We are subject to numerous governmental regulations.

We are subject to federal, state, local and foreign regulations, including environmental regulations and regulations relating to the design and operation of our products and control systems and regulations governing the import, export and customs duties related to our products. We might incur significant costs as we seek to ensure that our products meet safety and emissions standards, many of which vary across the states and countries in which our products are used. In the past, we have invested significant resources to redesign our products to comply with these directives. Compliance with future regulations, directives, and standards could require us to modify or redesign some products, make capital expenditures, or incur substantial costs. Also, we may incur significant costs in complying with the numerous imports, exports 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 must 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 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.

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 June 30, 2019

2.1	Stock Purchase Agreement, dated May 14, 2019, by and among Advanced Energy Industries, Inc., Artesyn Embedded Technologies, Inc., Pontus Intermediate Holdings II, LLC and Pontus Holdings, LLC (Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-26966), filed May 15, 2019)*
3.1	Amendment and Restated Certificate of Incorporation of Advanced Energy Industries, Inc., filed on July 5, 2019.
31.1	Certification of the Chief Executive Officer Pursuant to Rule 13a14(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 13a14(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 - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL 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 June 30, 2019, 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.

* Schedules, exhibits, and similar supporting attachments or agreements to the Stock Purchase Agreement are omitted pursuant to Item 601(b)(2) of Regulation S-K. Advanced Energy Industries, Inc. agrees to furnish a supplemental copy of any omitted schedule or similar attachment to the Securities and Exchange Commission upon request.

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: August 5, 2019

/s/ Paul Oldham
Paul Oldham
Chief Financial Officer & Executive Vice President

Exhibit 3.1

AMENDED AND RESTATED CERTIFICATE OF INCORPORATION
OF
ADVANCED ENERGY INDUSTRIES, INC.

Advanced Energy Industries, Inc., a corporation organized and existing under and by virtue of the General Corporation Law of the state of Delaware (the "Corporation"), DOES HEREBY CERTIFY:

1. The name of the Corporation is Advanced Energy Industries, Inc. The date of filing of the Corporation's original Certificate of Incorporation with the Secretary of State was September 1, 1995.

2. This Amended and Restated Certificate of Incorporation has been duly adopted in accordance with Sections 242 and 245 of the Delaware General Corporation Law and restates, integrates and further amends the provisions of the Corporation's Certificate of Incorporation.

3. The text of the Certificate of Incorporation of this Corporation is hereby amended and restated in its entirety to read as set forth in Exhibit A attached hereto.

IN WITNESS WHEREOF, said Advanced Energy Industries, Inc. has caused this Amended and Restated Certificate of Incorporation to be signed by Thomas O. McGimpsey, its Secretary, this _5th_ day of _July_, 2019.

ADVANCED ENERGY INDUSTRIES, INC.

By: /s/ Thomas O. McGimpsey
Thomas O. McGimpsey
Executive Vice President, General Counsel, Governmental Affairs & Corporate Secretary

Exhibit A

AMENDED AND RESTATED CERTIFICATE OF INCORPORATION
OF
ADVANCED ENERGY INDUSTRIES, INC.

I.

The name of this corporation is ADVANCED ENERGY INDUSTRIES, INC.

II.

The address, including street number, city, and county, of the registered office of the corporation in the state of Delaware is Corporation Trust Center, 1209 Orange Street, city of Wilmington, 19801, County of New Castle; and the name of the registered agent of the corporation in the State of Delaware at such address is The Corporation Trust Company.

III.

The purpose of this corporation is to engage in any lawful act or activity for which a corporation may be organized under the Delaware General Corporation Law.

IV.

A. This corporation is authorized to issue two classes of stock to be designated, respectively, “Common Stock” and “Preferred Stock.” The total number of shares which the corporation is authorized to issue is seventy-one million (71,000,000) shares. Seventy million (70,000,000) shares shall be Common Stock, par value $0.001 per share, and one million (1,000,000) shares shall be Preferred Stock, par value $0.001 per share.

B. The Preferred Stock may be issued from time to time in one or more series. The Board of Directors is hereby authorized, by filing a certificate (a “Preferred Stock Designation”) pursuant to the Delaware General Corporation Law, to fix or alter from time to time the designation, powers, preferences and rights of the shares of each such series and the qualifications, limitations or restrictions of any wholly unissued series of Preferred Stock, and to establish from time to time the number of shares constituting any such series or any of them; and to increase or decrease the number of shares of any series subsequent to the issuance of shares of that series, but not below the number of shares of such series then outstanding, in case the number of shares of any series shall be decreased in accordance with the foregoing sentence, the shares constituting such decrease shall resume the status that they had prior to the adoption of the resolution originally fixing the number of shares of such series.

V.

For the management of the business and for the conduct of the affairs of the corporation, and in further definition, limitation and regulation of the powers of the corporation, of its directors and of its stockholders or any class thereof, as the case may be, it is further provided that:

A.

(1) The management of the business and the conduct of the affairs of the corporation shall be vested in its Board of Directors. The number of directors which shall constitute the whole Board of Directors shall be fixed exclusively by one or more resolutions adopted by the Board of Directors.

(2) Subject to the rights of the holders of any series of Preferred Stock to elect additional directors under specified circumstances, directors shall be elected at each annual meeting of stockholders for a term of one year. Each director shall serve until his successor is duly elected and qualified or until his death, resignation or removal. No decrease in the number of directors constituting the Board of Directors shall shorten the term of any incumbent director.

(3) Subject to the rights of the holders of any series of Preferred Stock, any director may be removed with or without cause. Subject to any limitations imposed by law, the Board of Directors or any individual director may be removed from office at any time with or without cause by the affirmative vote of the holders of a majority of the voting power of all the then-outstanding shares of voting stock of the corporation, entitled to vote at an election of directors (the "Voting Stock").

(4) Subject to the rights of the holders of any series of Preferred Stock, any vacancies on the Board of Directors resulting from death, resignation, disqualification, removal or other causes and any newly created directorships resulting from any increase in the number of directors, shall, unless the Board of Directors determines by resolution that any such vacancies or newly created directorships shall be filled by the stockholders, except as otherwise provided by law, be filled only by the affirmative vote of a majority of the directors then in office, even though less than quorum of the Board of Directors, and not by the stockholders. Any director elected in accordance with the preceding

sentence shall hold office for the remainder of the full term of the director for which the vacancy was created or occurred and until such director's successor shall have been elected and qualified.

B.

(1) Subject to paragraph (h) of Section 43 of the Bylaws, the Bylaws may be altered or amended or new Bylaws adopted by the affirmative vote of at least sixty-six and two-thirds percent (66-2/3%) of the voting power of all of the then-outstanding shares of the Voting Stock. The Board of Directors shall also have the power to adopt, amend, or repeal Bylaws.

(2) The directors of the corporation need not be elected by written ballot unless the Bylaws so provide.

(3) Special meetings of the stockholder of the corporation may be called, for any purpose or purposes, by (i) the Chairman of the Board of Directors, (ii) the Chief Executive Officer, or (iii) the Board of Directors pursuant to a resolution adopted by a majority of the total number of authorized directors (whether or not there exist any vacancies in previously authorized directorships at the time any such resolution is presented to the Board of Directors for adoption), and shall be held at such place, on such date, and at such time as the Board of Directors shall fix.

(4) Advance notice of stockholder nominations for the election of directors and of business to be brought by stockholders before any meeting of the stockholders of the corporation shall be given in the manner provided in the Bylaws of the corporation.

VI.

A. A director of the corporation shall not be personally liable to the corporation or its stockholders for monetary damages for any breach of fiduciary duty as a director, except for liability (i) for any breach of the director's duty of loyalty to the corporation or its stockholders, (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law (iii) under Section 174 of the Delaware General Corporation Law, or (iv) for any transaction from which the director derived an improper personal benefit. If the Delaware General Corporation Law is amended after approval by the stockholders of this Article to authorize corporate action further eliminating or limiting the personal liability of directors, then the liability of a director shall be eliminated or limited to the fullest extent permitted by the Delaware General Corporation Law, as so amended.

B. Any repeal or modification of this Article VI shall be prospective and shall not affect the rights under this Article VI in effect at the time of the alleged occurrence of any act or omission to act giving rise to liability or indemnification.

VII.

A. The corporation reserves the right to amend, alter, change or repeal any provision contained in this Certificate of Incorporation in the manner now or hereafter prescribed by statute, except as provided in paragraph B of this Article VII, and all rights conferred upon the stockholders herein are granted subject to this reservation.

B. Notwithstanding any other provisions of this Certificate of Incorporation or any provision of law which might otherwise permit a lesser vote or no vote, but in addition to any affirmative vote of the holders of any particular class or series of the Voting Stock required by law, this Certificate of Incorporation or any Preferred Stock Designation, the affirmative vote of the holders of at least sixty-six and two-thirds percent (66-2/3%) of the voting power of all of the then-outstanding shares of the Voting Stock, voting together as a single class, shall be required to alter, amend or repeal Articles VI or VII.

EXHIBIT 31.1

I, Yuval Wasserman, certify that:

1. I have reviewed this quarterly report on Form 10-Q for the period ended June 30, 2019 of Advanced Energy Industries, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

    a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

    b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

    c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

    d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

    a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

    b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: August 5, 2019

/s/ Yuval Wasserman
Yuval Wasserman
Chief Executive Officer

EXHIBIT 31.2

I, Paul Oldham, certify that:

1. I have reviewed this quarterly report on Form 10-Q for the period ended June 30, 2019 of Advanced Energy Industries, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

    a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

    b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

    c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

    d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

    a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

    b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: August 5, 2019

/s/ Paul Oldham
Paul Oldham
Chief Financial Officer & Executive Vice President

EXHIBIT 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

I hereby certify, pursuant to 18 U.S.C. Section 1350, that the accompanying Quarterly Report on Form 10-Q for the period ended June 30, 2019, of Advanced Energy Industries, Inc., fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and that information contained in the Quarterly Report on Form 10-Q fairly presents, in all material respects, the financial condition and results of operations of Advanced Energy Industries, Inc.

Date: August 5, 2019

/s/ Yuval Wasserman
Yuval Wasserman
Chief Executive Officer

A signed original of this written statement required by Section 906 has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.

EXHIBIT 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

I hereby certify, pursuant to 18 U.S.C. Section 1350, that the accompanying Quarterly Report on Form 10-Q for the period ended June 30, 2019, of Advanced Energy Industries, Inc., fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and that information contained in the Quarterly Report on Form 10-Q fairly presents, in all material respects, the financial condition and results of operations of Advanced Energy Industries, Inc.

Date: August 5, 2019

/s/ Paul Oldham
Paul Oldham
Chief Financial Officer & Executive Vice President

A signed original of this written statement required by Section 906 has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.