EDGAR® pro
by EDGAR®Online

TPI COMPOSITES, INC

FORM 10-Q
(Quarterly Report)

Filed 08/07/19 for the Period Ending 06/30/19

Address	8501 N SCOTTSDALE ROAD GAINEY CENTER II, SUITE 100 SCOTTSDALE, AZ, 85253
Telephone	480-305-8910
CIK	0001455684
Symbol	TPIC
SIC Code	3510 - Engines And Turbines
Industry	Renewable Energy Equipment & Services
Sector	Energy

Powered By EDGAR®Online
http://www.edgar-online.com
© Copyright 2020, EDGAR Online, a division of Donnelley Financial Solutions. All Rights Reserved.
Distribution and use of this document restricted under EDGAR Online, a division of Donnelley Financial Solutions, Terms of Use.

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**

Commission File Number 001-37839

TPI Composites, Inc.
(Exact name of registrant as specified in its charter)

Delaware	**20-1590775**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification Number)**

8501 N. Scottsdale Rd.
Gainey Center II, Suite 100
Scottsdale, AZ 85253

(480) 305-8910
(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

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, par value $0.01	TPIC	NASDAQ Global 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 every Interactive Data File required to be submitted 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 such files). Yes ☒ No ☐

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

Large accelerated filer	☐	Accelerated filer	☒
Non-accelerated filer	☐	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 July 31, 2019, there were 35,153,706 shares of common stock outstanding.

TPI COMPOSITES, INC. AND SUBSIDIARIES

INDEX

		Page
PART I. FINANCIAL INFORMATION		
ITEM 1.	Condensed Consolidated Financial Statements (Unaudited)	5
	Condensed Consolidated Balance Sheets as of June 30, 2019 and December 31, 2018	5
	Condensed Consolidated Statements of Operations for the Three and Six Months Ended June 30, 2019 and 2018	6
	Condensed Consolidated Statements of Comprehensive Income (Loss) for the Three and Six Months Ended June 30, 2019 and 2018	7
	Condensed Consolidated Statements of Changes in Stockholders' Equity for the Three and Six Months Ended June 30, 2019	8
	Condensed Consolidated Statements of Cash Flows for the Six Months Ended June 30, 2019 and 2018	9
	Notes to Unaudited Condensed Consolidated Financial Statements	10
ITEM 2.	Management's Discussion and Analysis of Financial Condition and Results of Operations	27
ITEM 3.	Quantitative and Qualitative Disclosures About Market Risk	44
ITEM 4.	Controls and Procedures	45
PART II. OTHER INFORMATION		
ITEM 1.	Legal Proceedings	46
ITEM 1A.	Risk Factors	46
ITEM 2.	Unregistered Sales of Equity Securities and Use of Proceeds	46
ITEM 3.	Defaults Upon Senior Securities	46
ITEM 4.	Mine Safety Disclosures	46
ITEM 5.	Other Information	46
ITEM 6.	Exhibits	47
SIGNATURES		48

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Quarterly Report on Form 10-Q contains forward-looking statements within the meaning of the federal securities law. All statements other than statements of historical facts contained in this Quarterly Report on Form 10-Q, including statements regarding our future results of operations and financial position, business strategy and plans and objectives of management for future operations, are forward-looking statements. In many cases, you can identify forward-looking statements by terms such as "may," "should," "expects," "plans," "anticipates," "could," "intends," "target," "projects," "contemplates," "believes," "estimates," "predicts," "potential" or "continue" or the negative of these terms or other similar words. Forward-looking statements contained in this Quarterly Report on Form 10-Q include, but are not limited to, statements about:

- growth of the wind energy market and our addressable market;
- the potential impact of the increasing prevalence of auction-based tenders in the wind energy market and increased competition from solar energy on our gross margins and overall financial performance;
- our future financial performance, including our net sales, cost of goods sold, gross profit or gross margin, operating expenses, ability to generate positive cash flow, and ability to achieve or maintain profitability;
- changes in domestic or international government or regulatory policy, including without limitation, changes in trade policy;
- the sufficiency of our cash and cash equivalents to meet our liquidity needs;
- our ability to attract and retain customers for our products, and to optimize product pricing;
- our ability to effectively manage our growth strategy and future expenses, including our startup and transition costs;
- competition from other wind blade and wind blade turbine manufacturers;
- the discovery of defects in our products;
- our ability to successfully expand in our existing wind energy markets and into new international wind energy markets;
- our ability to successfully open new manufacturing facilities and expand existing facilities on time and on budget;
- the impact of the accelerated pace of new product and wind blade model introductions on our business and our results of operations;
- our ability to successfully expand our transportation business and execute upon our strategy of entering new markets outside of wind energy;
- worldwide economic conditions and their impact on customer demand;
- our ability to maintain, protect and enhance our intellectual property;
- our ability to comply with existing, modified or new laws and regulations applying to our business, including the imposition of new taxes, duties or similar assessments on our products;
- the attraction and retention of qualified employees and key personnel;
- our ability to maintain good working relationships with our employees, and avoid labor disruptions, strikes and other disputes with labor unions that represent certain of our employees;
- our ability to procure adequate supplies of raw materials and components to fulfill our wind blade volume commitments to our customers; and
- the potential impact of one or more of our customers becoming bankrupt or insolvent, or experiencing other financial problems.

These forward-looking statements are only predictions. These statements relate to future events or our future financial performance and involve known and unknown risks, uncertainties and other important factors that may cause our actual results, levels of activity, performance or achievements to materially differ from any future results, levels of activity, performance or achievements expressed or implied by these forward-looking statements. We have described in the "Risk Factors" section of our Annual Report on Form 10-K filed with the United States Securities and Exchange Commission (SEC) on March 5, 2019 the principal risks and uncertainties that we believe could cause actual results to differ from these forward-looking statements. Because forward-looking statements are inherently subject to risks and uncertainties, some of which cannot be predicted or quantified, you should not rely on these forward-looking statements as guarantees of future events.

The forward-looking statements in this Quarterly Report on Form 10-Q represent our views as of the date of thi s Quarterly Report on Form 10-Q . We anticipate that subsequent events and developments will cause our views to change. However, while we may elect to update these forward-looking statements at some point in the future, we undertake no obligation to update any forward-looking statement to reflect events or developments after the date on which the statement is made or to reflect the occurrence of unanticipated events except to the extent required by applicable law. You should, therefore, not rely on these for ward-looking statements as representing our views as of any date after the date of this Quarterly Report. Our forward-looking statements do not reflect the potential impact of any future acquisitions, mergers, dispositions, joint ventures, or investments w e may make.

PART I—FINANCI AL INFORMATION

ITEM l. CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

TPI COMPOSITES, INC. AND SUBSIDIARIES

Condensed Consolidated Balance Sheets
(In thousands, except par value data)

	June 30, 2019	December 31, 2018
	(Unaudited)	
Assets		
Current assets:		
Cash and cash equivalents	$ 58,664	$ 85,346
Restricted cash	2,122	3,555
Accounts receivable	154,191	176,815
Contract assets	157,315	116,708
Prepaid expenses	15,832	9,219
Other current assets	30,908	16,819
Inventories	9,738	5,735
Total current assets	428,770	414,197
Property, plant, and equipment, net	181,416	159,423
Operating lease right of use assets	130,512	—
Other noncurrent assets	47,262	31,235
Total assets	$ 787,960	$ 604,855
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable and accrued expenses	$ 239,909	$ 199,078
Accrued warranty	42,834	36,765
Current maturities of long-term debt	33,780	27,058
Current operating lease liabilities	17,362	—
Contract liabilities	2,596	7,143
Total current liabilities	336,481	270,044
Long-term debt, net of debt issuance costs and current maturities	115,157	110,565
Noncurrent operating lease liabilities	119,273	—
Other noncurrent liabilities	5,017	3,289
Total liabilities	575,928	383,898
Commitments and contingencies (Note 11)		
Stockholders' equity:		
Common shares, $0.01 par value, 100,000 shares authorized, 35,141 shares issued and 35,056 shares outstanding at June 30, 2019 and 100,000 shares authorized, 34,745 shares issued and 34,678 shares outstanding at December 31, 2018	351	347
Paid-in capital	319,428	311,771
Accumulated other comprehensive loss	(20,143)	(14,392)
Accumulated deficit	(85,257)	(74,981)
Treasury stock, at cost, 85 shares at June 30, 2019 and 67 shares at December 31, 2018	(2,347)	(1,788)
Total stockholders' equity	212,032	220,957
Total liabilities and stockholders' equity	$ 787,960	$ 604,855

See accompanying notes to unaudited condensed consolidated financial statements.

TPI COMPOSITES, INC. AND SUBSIDIARIES

Condensed Consolidated Statements of Operations
(In thousands, except per share data)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
	(Unaudited)			
Net sales	$ 330,771	$ 230,610	$ 630,551	$ 484,591
Cost of sales	285,319	198,235	568,357	409,223
Startup and transition costs	22,901	17,324	41,079	32,059
Total cost of goods sold	308,220	215,559	609,436	441,282
Gross profit	22,551	15,051	21,115	43,309
General and administrative expenses	9,208	10,989	17,193	22,152
Realized loss on sale of assets	4,972	—	7,207	—
Restructuring charges	3,874	—	3,874	—
Income (loss) from operations	4,497	4,062	(7,159)	21,157
Other income (expense):				
Interest income	31	43	82	84
Interest expense	(2,274)	(2,715)	(4,273)	(6,053)
Loss on extinguishment of debt	—	(3,397)	—	(3,397)
Realized loss on foreign currency remeasurement	(967)	(765)	(4,769)	(4,776)
Miscellaneous income	1,016	674	1,718	1,492
Total other expense	(2,194)	(6,160)	(7,242)	(12,650)
Income (loss) before income taxes	2,303	(2,098)	(14,401)	8,507
Income tax (provision) benefit	(475)	(1,955)	4,125	(3,912)
Net income (loss)	$ 1,828	$ (4,053)	$ (10,276)	$ 4,595
Weighted-average common shares outstanding:				
Basic	35,033	34,164	34,970	34,107
Diluted	36,369	34,164	34,970	35,766
Net income (loss) per common share:				
Basic	$ 0.05	$ (0.12)	$ (0.29)	$ 0.13
Diluted	$ 0.05	$ (0.12)	$ (0.29)	$ 0.13

See accompanying notes to unaudited condensed consolidated financial statements.

TPI COMPOSITES, INC. AND SUBSIDIARIES

Condensed Consolidated Statements of Comprehensive Income (Loss)
(In thousands)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
	(Unaudited)			
Net income (loss)	$ 1,828	$ (4,053)	$ (10,276)	$ 4,595
Other comprehensive income (loss):				
Foreign currency translation adjustments	(4,203)	(8,177)	(2,870)	(6,287)
Unrealized gain (loss) on hedging derivatives, net of taxes of $284, $0, $765 and $0, respectively	(1,071)	192	(2,881)	192
Comprehensive loss	$ (3,446)	$ (12,038)	$ (16,027)	$ (1,500)

See accompanying notes to unaudited condensed consolidated financial statements.

T PI COMPOSITES, INC. AND SUBSIDIARIES

Condensed Consolidated Statement of Changes in Stockholders' Equity
(In thousands)

	Common		Paid-in	Accumulated other comprehensive	Accumulated	Treasury stock,	Total stockholders'
	Shares	Amount	capital	loss	deficit	at cost	equity
Balance at December 31, 2018	34,745	$ 347	$ 311,771	$ (14,392)	$ (74,981)	$ (1,788)	$ 220,957
Net loss	—	—	—	—	(12,104)	—	(12,104)
Share-based compensation expense	—	—	821	—	—	—	821
Issuances under share-based compensation plan	355	4	4,635	—	—	—	4,639
Common stock repurchased for treasury	—	—	—	—	—	(559)	(559)
Other comprehensive loss	—	—	—	(477)	—	—	(477)
Balance at March 31, 2019	35,100	351	317,227	(14,869)	(87,085)	(2,347)	213,277
Net income	—	—	—	—	1,828	—	1,828
Share-based compensation expense	—	—	2,057	—	—	—	2,057
Issuances under share-based compensation plan	41	—	144	—	—	—	144
Other comprehensive loss	—	—	—	(5,274)	—	—	(5,274)
Balance at June 30, 2019	35,141	$ 351	$ 319,428	$ (20,143)	$ (85,257)	$ (2,347)	$ 212,032

See accompanying notes to unaudited condensed consolidated financial statements.

TPI COMPOSITES, INC. AND SUBSIDIARIES

Condensed Consolidated Statements of Cash Flows
(In thousands)

	Six Months Ended June 30,	
	2019	2018
	(Unaudited)	
Cash flows from operating activities:		
Net income (loss)	$ (10,276)	$ 4,595
Adjustments to reconcile net income (loss) to net cash provided by (used in) operating activities:		
Depreciation and amortization	17,784	13,202
Loss on sale of assets	7,207	—
Restructuring charges	3,874	—
Share-based compensation expense	2,922	4,999
Loss on extinguishment of debt	—	3,397
Amortization of debt issuance costs	103	260
Changes in assets and liabilities:		
Accounts receivable	17,936	2,098
Contract assets and liabilities	(46,721)	(26,695)
Operating lease right of use assets and operating lease liabilities	6,123	—
Inventories	(4,102)	(1,481)
Prepaid expenses	(6,773)	(440)
Other current assets	(14,401)	1,324
Other noncurrent assets	(18,419)	(4,047)
Accounts payable and accrued expenses	35,341	1,940
Accrued warranty	6,069	3,560
Other noncurrent liabilities	1,815	(177)
Net cash provided by (used in) operating activities	(1,518)	2,535
Cash flows from investing activities:		
Purchases of property, plant and equipment	(37,739)	(42,310)
Net cash used in investing activities	(37,739)	(42,310)
Cash flows from financing activities:		
Proceeds from revolving and term loans	6,000	74,435
Repayments of revolving and term loans	—	(74,972)
Net proceeds from accounts receivable financing	5,062	11,924
Proceeds from working capital loans	2,909	—
Principal repayments of finance leases	(5,471)	—
Net repayments of other debt	(2,211)	(5,449)
Debt issuance costs	—	(281)
Proceeds from exercise of stock options	4,716	1,307
Repurchase of common stock including shares withheld in lieu of income taxes	(559)	(272)
Net cash provided by financing activities	10,446	6,692
Impact of foreign exchange rates on cash, cash equivalents and restricted cash	696	(453)
Net change in cash, cash equivalents and restricted cash	(28,115)	(33,536)
Cash, cash equivalents and restricted cash, beginning of year	89,376	152,437
Cash, cash equivalents and restricted cash, end of period	$ 61,261	$ 118,901
Supplemental disclosures of cash flow information:		
Cash paid for interest	$ 4,236	$ 5,607
Cash paid for income taxes, net	9,699	2,425
Supplemental disclosures of noncash investing and financing activities:		
Accrued capital expenditures in accounts payable	6,690	3,670

See accompanying notes to unaudited condensed consolidated financial statements.

Note 1. Summary of Operations and Significant Accounting Policies

Description of Business

TPI Composites, Inc. is the holding company that conducts substantially all of its business operations through its direct and indirect subsidiaries (collectively, the Company). The Company was founded in 1968 and has been producing composite wind blades since 2001. The Company's knowledge and experience of composite materials and manufacturing originates with its predecessor company, Tillotson Pearson Inc., a leading manufacturer of high-performance sail and powerboats along with a wide range of composite structures used in other industrial applications. Following the separation from the boat building business in 2004, the Company reorganized in Delaware as LCSI Holding, Inc. and then changed its corporate name to TPI Composites, Inc. in 2008. The Company is headquartered in Scottsdale, Arizona and has expanded its global footprint to include domestic facilities in Newton, Iowa; Fall River, Massachusetts; Warren, Rhode Island and Santa Teresa, New Mexico and international facilities in Dafeng, China; Taicang Port, China; Taicang City, China; Yangzhou, China; Juárez, Mexico; Matamoros, Mexico; Izmir, Turkey; Kolding, Denmark and Chennai, India.

References to TPI Composites, Inc, the "Company," "we," "us" or "our" in these notes refer to TPI Composites, Inc. and its consolidated subsidiaries.

Basis of Presentation

We divide our business operations into four geographic operating segments—(1) the United States (U.S.), (2) Asia, (3) Mexico and (4) Europe, the Middle East, Africa and India (EMEAI) as follows:

- Our U.S. segment includes (1) the manufacturing of wind blades at our Newton, Iowa plant, (2) the manufacturing of precision molding and assembly systems used to manufacture wind blades at our Warren, Rhode Island facility, (3) the manufacturing of composite solutions for the transportation industry, which we also conduct at our existing Rhode Island facility as well as at our Fall River, Massachusetts facility and at a second manufacturing facility in Newton, Iowa, (4) wind blade inspection and repair services in North America, (5) our advanced engineering center in Kolding, Denmark, which provides technical and engineering resources to our manufacturing facilities and (6) our corporate headquarters, the costs of which are included in general and administrative expenses.
- Our Asia segment includes (1) the manufacturing of wind blades at our facilities in Taicang Port, China; Dafeng, China and Yangzhou, China, the latter of which commenced operations in March 2019, (2) the manufacturing of precision molding and assembly systems at our Taicang City, China facility and (3) wind blade inspection and repair services.
- Our Mexico segment manufactures wind blades from three facilities in Juárez, Mexico and a facility in Matamoros, Mexico at which we commenced operations in July 2018. In November 2018, we entered into a new lease agreement with a third party for a new precision molding and assembly systems manufacturing facility in Juárez, Mexico and we commenced operations at this facility in March 2019. This segment also performs wind blade inspection and repair services.
- Our EMEAI segment manufactures wind blades from two facilities in Izmir, Turkey and also performs wind blade inspection and repair services. In February 2019, we entered into a new lease agreement with a third party for a new manufacturing facility that will be built in Chennai, India and we expect to commence operations at this facility in the first half of 2020.

The accompanying condensed consolidated financial statements include the accounts of TPI Composites, Inc. and all of our majority owned subsidiaries. All significant intercompany transactions and balances have been eliminated.

The condensed consolidated financial statements included herein have been prepared by us without audit, pursuant to the rules and regulations of the SEC and should be read in conjunction with the audited consolidated financial statements for the year ended December 31, 2018 included in our Annual Report on Form 10-K. Certain information and footnote disclosures normally included in financial statements prepared in accordance with accounting principles generally accepted in the United States (GAAP) have been condensed or omitted, as permitted by the SEC, although we believe the disclosures that are made are adequate to make the information presented herein not misleading. The accompanying condensed consolidated financial statements reflect, in the opinion of our management, all normal recurring adjustments necessary to present fairly our financial position at June 30, 2019, and the results of our operations, comprehensive income (loss) and cash flows for the periods presented. Interim results for the three and six months ended June 30, 2019 and 2018 are not necessarily indicative of the results to be expected for the full years.

Recently Issued Accounting Pronouncements

Accounting Pronouncements Adopted in 2019

Leases

In February 2016, the Financial Accounting Standards Board (FASB) established Topic 842, *Leases* , by Accounting Standards Update (ASU) No. 2016-02, which requires lessees to recognize leases on-balance sheet and disclose key information about leasing arrangements. Topic 842 was subsequently amended by ASU No. 2018-01, *Land Easement Practical Expedient for Transition to Topic 842* ; ASU No. 2018-10, *Codification Improvements to Topic 842, Leases* ; and ASU No. 2018-11, *Targeted Improvements* . The new standard establishes a right of use model that requires a lessee to recognize a right of use (ROU) asset and related lease liability on the balance sheet for all leases with a term longer than 12 months. Leases are to be classified as either finance or operating, with classification affecting the pattern and classification of expense recognition in the income statement.

We adopted this new standard on January 1, 2019 and used the effective date as our date of initial application. Consequently, we have not provided financial information and the disclosures required under the new standard for periods before January 1, 2019.

The adoption of this standard had a material effect on our financial statements, the most significant of which related to the recognition of ROU assets and lease liabilities on our balance sheet for our real estate, equipment and auto operating leases and providing significant new disclosures about our leasing activities.

We elected the package of practical expedients, which allowed us to retain conclusions related to lease identification and classification under legacy GAAP. The new standard also provided practical expedients for an entity's ongoing accounting. We elected the short-term lease recognition exemption for all leases that qualify. Accordingly, for those leases that qualified, we did not recognize ROU assets or lease liabilities, and this includes not recognizing ROU assets or lease liabilities for existing short-term leases. We also elected the practical expedient to not separate lease and non-lease components for all of our leases.

See Note 8, *Leases* , for further discussion of the adoption of this standard.

Income Taxes

In February 2018, the FASB issued ASU 2018-02, *Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income* , which allows a reclassification from accumulated other comprehensive income to retained earnings stranded tax effects resulting from the Tax Reform Act. We adopted this standard on January 1, 2019 and it did not have a material impact on our condensed consolidated financial statements.

Share-Based Compensation

In June 2018, the FASB issued ASU 2018-07, *Improvements to Nonemployee Share-Based Payment Accounting* , which expands the scope of Topic 718, *Compensation-Stock Compensation* , to include share-based payment transactions for acquiring goods and services from nonemployees. We adopted this standard on January 1, 2019 and it did not have a material impact on our condensed consolidated financial statements.

In July 2018, the FASB issued ASU 2018-09, *Codification Improvements* , which contains amendments that affect a wide variety of Topics in the Codification, including amendment to Subtopic 718-40, *Compensation-Stock Compensation-Income Taxes* , that clarifies the timing of when an entity should recognize excess tax benefits. We adopted this standard on January 1, 2019 and it did not have a material impact on our condensed consolidated financial statements.

Accounting Pronouncements Not Yet Adopted

Internal Use Software

In August 2018, the FASB issued ASU 2018-15, *Intangibles - Goodwill and Other-Internal Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract* , which allows for the capitalization of implementation costs incurred to develop or obtain internal-use software (and hosting arrangements that include an internal use software license).

This standa rd is effective for all public business entities for annual and interim periods beginning after December 15, 2021, with early adoption permitted. We plan to adopt this standard during 2019 and do not expect it to have a material impact on our condensed con solidated financial statements.

Fair Value Measurement

In August 2018, the FASB issued ASU 2018-13, *Fair Value Measurement (Topic 820): Disclosure Framework—Changes to the Disclosure Requirements for Fair Value Measurement,* which modifies the disclosure requirements in Topic 820.

This standard is effective for all public business entities for annual and interim periods beginning after December 15, 2019, with early adoption permitted. We will adopt this standard as of January 1, 2020 and we are currently evaluating the impact of the adoption of this standard on our condensed consolidated financial statements.

Goodwill

In January 2017, the FASB issued ASU 2017-04, *Intangibles - Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment,* which eliminates Step 2 from the goodwill impairment test.

This standard is effective for all public business entities for annual and interim periods beginning after December 15, 2019, with early adoption permitted for interim or annual goodwill impairment tests performed on testing dates after January 1, 2017. We plan to adopt this standard during 2019 when we perform our annual impairment tests and we are currently evaluating the impact of the adoption of this standard on our condensed consolidated financial statements.

Significant Accounting Policies

Revenue Recognition

The majority of our revenue is generated from long-term contracts associated with manufacturing of wind blades and related services. We account for a long-term contract when it has the approval from both parties, the rights of the parties are identified, payment terms are established, the contract has commercial substance and the collectability of consideration is probable.

To determine the proper revenue recognition method for each long-term contract, we evaluate whether the original contract should be accounted for as one or more performance obligations. This evaluation requires judgment and the decisions reached could change the amount of revenue and gross profit recorded in a given period. As most of our contracts contain multiple performance obligations, we allocate the total transaction price to each performance obligation based on the estimated relative standalone selling prices of the promised goods or services underlying each performance obligation. Our manufacturing services are customer specific and involve production of items that cannot be sold to other customers due to the customers' protected intellectual property; therefore, we allocate the total transaction price under our contracts with multiple performance obligations using the contractually stated prices, as these prices represent the relative standalone selling price based on an expected cost plus margin model.

Revenue is primarily recognized over time as we have an enforceable right to payment upon termination and we may not use or sell the product to fulfill other customers' contracts. In addition, the customer does not have return or refund rights for items produced that conform to the specifications included in the contract. Because control transfers over time, revenue is recognized based on the extent of progress towards the completion of the performance obligation. We use the cost-to-cost input measure of progress for our contracts as this method provides the best representation of the production progress towards satisfaction of the performance obligation as the materials are distinct to the product being manufactured because of customer specifications provided for in the contract, the costs incurred are proportional to the progress towards completion of the product, and the products do not involve significant pre-fabricated component parts. Under the cost-to-cost method, progress and the related revenue recognition is determined by a ratio of direct costs incurred to date in fulfillment of the contract to the total estimated direct costs required to complete the performance obligation.

Determining the revenue to be recognized for services performed under our manufacturing contracts involves significant judgments and estimates relating to the total consideration to be received and the expected total costs to complete the performance obligation. The judgments and estimates relating to the total consideration to be received include the amount of variable consideration as our contracts typically provide the customer with a range of production output options from guaranteed minimum volume obligations to the production capacity of the facility, and customers will provide periodic non-cancellable commitments for the number of wind blades to be produced over the term of the agreement. We use historical experience, customer commitments and forecasted future production based on the capacity of the plant to estimate the total revenue to be received to complete the performance obligation. In

addition, the amount of revenue per unit produced may vary based on the costs of production of the wind blades as we may be able to change the price per unit based on changes in the cost of production. Further, some of our contracts provide opportunities for us to share in labor and material cost savings as well as absorb some additional costs as an incentive for more efficient production, both of which impact the margin realized on the con tract and ultimately the total amount of revenue to be recognized. Additionally, certain of our customer contracts provide for concessions by us for missed production deadlines.

We estimate variable consideration at the most likely amount to which we expect to be entitled. We include estimated amounts in the transaction price to the extent it is probable that a significant reversal of cumulative revenue recognized will not occur when the uncertainty associated with the variable consideration is resolved. Our estimates of variable consideration and determination of whether to include estimated amounts in the transaction price are based largely on an assessment of our anticipated performance and all information available to us at the time of the estimate and may materially change as additional information becomes known.

Our contracts may be modified to account for changes in specifications of products and changing requirements. If the contract modifications are for goods or services that are not distinct from the existing contract, they are accounted for as if they were part of the original contract. The effect of a contract modification on the transaction price and the measure of progress for the performance obligation to which it relates is recognized as an adjustment to revenue on a cumulative catch-up basis. If contract modifications are for goods and services that are distinct from the existing contract and increases the amount of consideration reflecting the standalone sale price of the additional goods or services, then the contract modification is accounted for as a separate contract and is evaluated for one or more performance obligations.

Each reporting period, we evaluate the progress towards satisfaction of each performance obligation based on any contract modifications that have occurred, cost incurred to date, and an estimate of the expected future revenue and costs to be incurred to complete the performance obligation. Based on this analysis, any changes in estimates of revenue, cost of sales, contract assets and liabilities and the related impact to operating income are recognized on a cumulative catch-up basis, which recognizes in the current period the cumulative effect of the changes on current and prior periods based on the percentage of completion of the performance obligation.

Wind blade pricing is based on annual commitments of volume as established in our customer contracts and orders less than committed volume may result in a higher price per wind blade to our customers. Orders in excess of annual commitments may result in discounts to our customers from the contracted price for the committed volume. Our customers typically provide periodic purchase orders with the price per wind blade given the current cost of the bill of materials, labor requirements and volume desired. We record an allowance for expected utilization of early payment discounts which are reported as a reduction of the related revenue.

Precision molding and assembly systems included in a customer’s contract are based upon the specific engineering requirements and design determined by the customer and are specific to the wind blade design and function desired. From the customer’s engineering specifications, a job cost estimate is developed along with a production plan, and the desired margin is applied based on the location the work is to be performed and complexity of the customer’s design. Precision molding and assembly systems are generally built to produce wind blades which may be manufactured by us in production runs specified in the customer contract.

Contract assets primarily relate to our rights to consideration for work completed but not billed at the reporting date on manufacturing services contracts. The contract assets are transferred to accounts receivable when the rights become unconditional, which generally occurs when customers are invoiced upon the determination that a product conforms to the contract specifications and invoices are due based on each customer’s negotiated payment terms, which range from 15 to 90 days. We apply the practical expedient that allows us to exclude payment terms under one year from the transfer of a promised good or service from consideration of a significant financing component in its contracts. With regards to the production of precision molding and assembly systems, our contracts generally call for progress payments to be made in advance of production. Generally, payment is made at certain percentage of completion milestones with the final payment due upon delivery to the manufacturing facility. These progress payments are recorded within contract liabilities as current liabilities in the condensed consolidated balance sheets and are reduced as we record revenue over time. We evaluate indications that a customer may not be able to meet the obligations under our long-term supply agreements to determine if an account receivable or contract asset may be impaired.

Our customers may request, in situations where they do not have space available to receive products or do not want to take possession of products immediately for other reasons, that their finished products be stored by us in one of our facilities. Most of our contracts provide for a limited number of wind blades to be stored during the period of the contract with any additional wind blades stored subject to additional storage fees, which are included in the wind blade performance obligation revenue.

Revenue related to non-recurring engineering and freight services provided under our customer contracts is recognized at a point in time following the transfer of control of the promised services to the customer. Customers usually pay the carrier directly for the cost of shipping associated with items produced. When we pay the shipping costs, we appl y the practical expedient that allows us to account for shipping and handling as a fulfillment costs and include the revenue in the associated performance obligation a nd the costs are included in cost of goods sold.

Taxes assessed by a governmental authority that are both imposed on and concurrent with specific revenue-producing transactions, that are collected by us from a customer, are excluded from revenue.

Warranty Expense

We provide a limited warranty for our wind blades and related precision molding and assembly systems, including materials and workmanship, with terms and conditions that vary depending on the product sold, generally for periods that range from two to five years. We also provide a limited warranty for our transportation products, including materials and workmanship, with terms and conditions that vary depending on the product sold, generally for a period of approximately two years. Warranty expense is recorded based upon estimates of future repairs using a probability-based methodology that considers previous warranty claims, identified quality issues and industry practices. Once the warranty period has expired, any remaining unused warranty accrual for the specific products is reversed against the current year warranty expense amount.

Warranty accrual at June 30 consisted of the following:

	2019 (in thousands)
Warranty accrual at beginning of year	$ 36,765
Accrual during the period	10,273
Cost of warranty services provided during the period	(2,445)
Reversal of reserves upon warranty expiration	(1,759)
Warranty accrual at end of period	$ 42,834

Leases

We determine if an arrangement is a lease at inception. Operating leases are included in operating lease right of use assets, current operating lease liabilities, and noncurrent operating lease liabilities in the condensed consolidated balance sheets. Finance leases are included in property, plant and equipment, current maturities of long-term debt, and long-term debt, net of debt issuance costs and current maturities in the condensed consolidated balance sheets.

Operating lease ROU assets and operating lease liabilities are recognized based on the present value of future minimum lease payments over the lease term at commencement date. Variable payments are not included in ROU assets or lease liabilities and can vary from period to period based on asset usage or our proportionate share of common costs. The implicit rate within our leases is generally not determinable and, therefore, the incremental borrowing rate at lease commencement is utilized to determine the present value of lease payments. We estimate our incremental borrowing rate based on third-party lender quotes to obtain secured debt in a like currency for a similar asset over a timeframe similar to the term of the lease. The ROU asset also includes any lease prepayments made and any initial direct costs incurred and excludes lease incentives. Our lease terms may include options to extend or terminate the lease when it is reasonably certain that we will exercise that option. Lease expense for minimum lease payments is recognized on a straight-line basis over the lease term. We have elected not to recognize ROU assets or lease liabilities for leases with a term of 12 months or less.

We have lease agreements with lease and non-lease components. We have elected to apply the practical expedient to account for these components as a single lease component for all classes of underlying assets.

Restructuring Charges

Our restructuring charges consist of employee severance, one-time termination benefits and ongoing benefits related to the reduction of our workforce and other costs associated with exit activities, which may include costs related to leased facilities to be abandoned and facility and employee relocation costs. Liabilities for costs associated with a restructuring activity are measured at fair value and

are recognized when the liability is incurred, except for one-time termination benefits . One-time termination benefits are expensed at the date the entity notifies the employee, unless the employee must provide future service, in which case the benefits are expensed ratably over the future service period. Ongoing benefits are expensed when r estructuring activities are probable and the benefit amounts are estimable.

Treasury Stock

Common stock purchased for treasury is recorded at historical cost. Transactions in treasury shares relate to share-based compensation plans and are recorded at weighted-average cost.

Net Income (Loss) Per Common Share Calculation

The basic net income (loss) per common share is computed by dividing the net income (loss) by the weighted-average number of common shares outstanding during a period. Diluted net income per common share is computed by dividing the net income by the weighted-average number of common shares outstanding plus potentially dilutive securities using the treasury stock method. The table below reflects the calculation of the weighted-average number of common shares outstanding, using the treasury stock method, used in computing basic and diluted earnings per common share:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
	(in thousands)			
Basic weighted-average shares outstanding	35,033	34,164	34,970	34,107
Effect of dilutive awards	1,336	—	—	1,659
Diluted weighted-average shares outstanding	36,369	34,164	34,970	35,766

Share-based compensation awards of 19,000 shares and 97,000 shares were excluded from the computation of diluted net income per share for the three months ended June 30, 2019 and the six months ended June 30, 2018, respectively, because the effect would be anti-dilutive. Further, we had 1,455,000 and 1,851,000 potentially dilutive shares outstanding for the six months ended June 30, 2019 and the three months ended June 30, 2018, respectively, that were not included in the diluted net loss per share calculation because their effect would be anti-dilutive. In addition, certain performance-based restricted stock units have been excluded from the computation of diluted shares outstanding for all periods presented as the performance conditions had not yet been met.

Financial Instruments

Interest Rate Swap

We use interest rate swap contracts to mitigate our exposure to interest rate fluctuations associated with our credit agreement (the Credit Agreement) that we entered into in April 2018. We do not use such swap contracts for speculative or trading purposes.

To offset the variability of future interest payments on the Credit Agreement arising from changes in the London Interbank Offered Rate (LIBOR), in April 2018, we entered into an interest rate swap agreement with a financial institution for a notional amount of $75.0 million with an expiration date of April 2023. This interest rate swap effectively hedges $75.0 million of the future variable rate LIBOR interest expense to a fixed rate interest expense. The derivative instrument qualified for accounting as a cash flow hedge in accordance with FASB Accounting Standard Codification (ASC) Topic 815, *Derivatives and Hedging,* and we designated it as such.

The settlement value of the interest rate swap is $2.9 million as of June 30, 2019 and is included in other noncurrent liabilities in the condensed consolidated balance sheet. The unrealized loss on the swap of $2.3 million, net of tax, is included in the condensed consolidated statement of other comprehensive income (loss). The settlement value of the interest rate swap was $0.8 million as of December 31, 2018 and was included in other noncurrent assets in the condensed consolidated balance sheet.

Restricted Cash

We provide for cash deposits for letters of guarantee used for customs clearance related to our China locations which are reported as restricted cash in our condensed consolidated balance sheets. We also maintain a long-term deposit in interest bearing accounts, related to fully cash-collateralized letters of credit in connection with an equipment lessor in Iowa which is reported within other noncurrent assets in our condensed consolidated balance sheets. The following table provides a reconciliation of cash, cash equivalents and restricted cash reported within the condensed consolidated balance sheets which total the same such amounts in the condensed consolidated statements of cash flows:

	June 30, 2019	December 31, 2018	June 30, 2018	December 31, 2017
	(in thousands)			
Cash and cash equivalents	$ 58,664	$ 85,346	$ 113,995	$ 148,113
Restricted cash	2,122	3,555	4,431	3,849
Restricted cash included within other noncurrent assets	475	475	475	475
Total cash, cash equivalents and restricted cash shown in the condensed consolidated statements of cash flows	$ 61,261	$ 89,376	$ 118,901	$ 152,437

Other Current Assets

Other current assets primarily include refundable value-added taxes and deposits. As of June 30, 2019, we had $25.7 million of refundable value-added taxes and $5.1 million of deposits. As of December 31, 2018, we had $11.2 million of refundable value-added taxes and $5.6 million of deposits.

Use of Estimates

The preparation of these condensed consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the condensed consolidated financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Note 2. Revenue From Contracts with Customers

The following tables represents the disaggregation of our net sales revenue by product for each of our reportable segments:

	Three Months Ended June 30, 2019				
	U.S.	Asia	Mexico	EMEAI	Total
	(in thousands)				
Wind blade sales	$ 26,580	$ 78,413	$ 87,792	$ 108,979	$ 301,764
Precision molding and assembly systems sales	1,222	5,726	5,971	—	12,919
Transportation sales	6,440	—	—	—	6,440
Other sales	5,616	560	1,599	1,873	9,648
Total net sales	$ 39,858	$ 84,699	$ 95,362	$ 110,852	$ 330,771

	Three Months Ended June 30, 2018				
	U.S.	Asia	Mexico	EMEAI	Total
	(in thousands)				
Wind blade sales	$ 33,696	$ 67,180	$ 55,595	$ 49,882	$ 206,353
Precision molding and assembly systems sales	2,359	9,729	214	—	12,302
Transportation sales	7,459	—	—	—	7,459
Other sales	1,181	1,022	544	1,749	4,496
Total net sales	$ 44,695	$ 77,931	$ 56,353	$ 51,631	$ 230,610

	Six Months Ended June 30, 2019				
	U.S.	Asia	Mexico	EMEAI	Total
	(in thousands)				
Wind blade sales	$ 58,471	$ 140,541	$ 166,830	$ 212,872	$ 578,714
Precision molding and assembly systems sales	1,366	11,941	10,820	—	24,127
Transportation sales	12,656	—	—	—	12,656
Other sales	8,993	935	2,377	2,749	15,054
Total net sales	$ 81,486	$ 153,417	$ 180,027	$ 215,621	$ 630,551

	Six Months Ended June 30, 2018				
	U.S.	Asia	Mexico	EMEAI	Total
	(in thousands)				
Wind blade sales	$ 72,641	$ 135,351	$ 111,638	$ 120,903	$ 440,533
Precision molding and assembly systems sales	4,222	17,908	978	—	23,108
Transportation sales	11,512	—	—	—	11,512
Other sales	2,444	2,342	1,701	2,951	9,438
Total net sales	$ 90,819	$ 155,601	$ 114,317	$ 123,854	$ 484,591

In addition, most of our net sales are made directly to our customers, primarily large multi-national wind turbine manufacturers, under our long-term contracts which are typically five years in length.

Contract Assets and Liabilities

Contract assets consist of the amount of revenue recognized over time for performance obligations in production where control has transferred to the customer but the contract does not yet allow for the customer to be billed. Typically, customers are billed when the product finishes production and meets the technical specifications contained in the contract. The contract assets are recorded as current assets in the condensed consolidated balance sheets. Contract liabilities consist of advance payments in excess of revenue earned. These amounts were historically recorded as customer deposits which usually relate to progress payments received as precision molding and assembly systems were being manufactured. The contract liabilities are recorded as current liabilities in the condensed consolidated balance sheets and are reduced as we record revenue over time.

These contract assets and liabilities are reported on the condensed consolidated balance sheets net on a contract-by-contract basis at the end of each reporting period, as demonstrated in the table below.

Contract assets and contract liabilities consisted of the following:

	June 30, 2019	December 31, 2018	$ Change
	(in thousands)		
Gross contract assets	$ 171,315	$ 127,568	$ 43,747
Less: reclassification from contract liabilities	(14,000)	(10,860)	(3,140)
Contract assets	$ 157,315	$ 116,708	$ 40,607

	June 30, 2019	December 31, 2018	$ Change
	(in thousands)		
Gross contract liabilities	$ 16,596	$ 18,003	$ (1,407)
Less: reclassification to contract assets	(14,000)	(10,860)	(3,140)
Contract liabilities	$ 2,596	$ 7,143	$ (4,547)

C ontracts assets increased by $ 40.6 million from December 31, 2018 to June 30, 2019 due to incremental unbilled production during the six months ended June 30, 2019 . C ontracts liabilities decreased by $ 4.5 million from December 31, 2018 to June 30, 2019 due to the amou nts billed to customers exceeding the revenue earned related to precision molding and assembly systems and wind blades being produced in the six months ended June 30, 2019 .

The time it takes to produce a single blade is typically between 5 to 7 days. The time it takes to produce a mold is typically between 3 to 6 months.

For the three months ended June 30, 2019, we recognized no revenue, and for the six months ended June 30, 2019 we recognized $7.1 million of revenue, that was included in the corresponding contract liability balance at the beginning of the period.

Performance Obligations

Remaining performance obligations represent the estimated transaction price of firm orders for which work has not been performed and excludes any unexercised contract options.

As of June 30, 2019, the aggregate amount of the transaction price allocated to the remaining performance obligations to be satisfied in future periods was approximately $4.9 billion. We estimate that we will recognize the remaining performance obligations as revenue as follows: 16 percent in the remainder of 2019, 31 percent in 2020, 25 percent in 2021, 16 percent in 2022 and the remaining 12 percent in 2023.

For the three and six months ended June 30, 2019, net revenue recognized from our performance obligations satisfied in previous periods increased by $2.2 million and decreased by $12.5 million, respectively, as compared to an increase of $0.9 million and a decrease of $4.0 million, respectively, in the same periods of 2018. The current year decrease primarily related to changes in certain of our estimated total contract values and related percentage of completion estimates.

Pre-Production Investments

We recognize an asset for deferred costs incurred to fulfill a contract when those costs meet all of the following criteria: (a) the costs relate directly to a contract or to an anticipated contract that we can specifically identify; (b) the costs generate or enhance our resources that will be used in satisfying performance obligations in the future; and, (c) the costs are expected to be recovered. We capitalize the costs related to training our workforce to execute the manufacturing services and other facility set-up costs related to preparing for production of a specific contract. We factor these costs into our estimated cost analysis for the overall contract. Costs capitalized are amortized over the number of units produced during the contract term. As of June 30, 2019, the cost and accumulated amortization of such assets totaled $7.1 million and $2.4 million, respectively. As of December 31, 2018, the cost and accumulated amortization of such assets totaled $5.6 million and $2.1 million, respectively. These amounts are included in other noncurrent assets in the condensed consolidated balance sheets and in cost of goods sold within the condensed consolidated statements of operations.

Note 3. Significant Risks and Uncertainties

Our revenues and receivables are earned from a small number of customers and consequently, our production levels are dependent on these customers' orders. See Note 12, *Concentration of Customers* . In April 2019, one of our customers, Senvion GmbH (Senvion), entered into a provisional self-administration procedure as ordered by the Local Court of Hamburg, Germany pursuant to the Insolvency Act in Germany. As a result of this event, we reevaluated the outstanding accounts receivables due from Senvion, the revenue recognized under our contract with Senvion, as well as the property, plant and equipment at our Taicang Port, China facility where we manufactured blades for Senvion. As a result of that reevaluation, we revised our estimate of consideration to be received under the contract, which reduced the revenues recorded in the six months ended June 30, 2019 by $6.7 million. We also revised the useful life of property, plant and equipment which was being used to fulfill the Senvion contract and which does not have an alternative use. The revision of the useful life for these assets resulted in the acceleration of $1.9 million of depreciation expense which was recorded in cost of goods sold in the condensed consolidated statement of operations for the six months ended June 30, 2019. Based upon the information known as of June 30, 2019, on that date we maintained outstanding accounts receivable due from Senvion totaling $10.7 million. These amounts, which we believe are realizable based on the facts known to us as of June 30, 2019, relate to completed blades we have delivered or expect to deliver. See Note 14, *Subsequent Event* .

In February 2019, our manufacturing production employees in Matamoros, Mexico, who are represented by a labor union, went on strike demanding an increase in their hourly wage rate and the payment of an annual bonus, even though our collective bargaining agreement does not provide for such incentives. During this work stoppage, production was halted at our Matamoros manufacturing facility from February 15, 2019 until March 2, 2019. Although we ultimately resolved the matter in early March 2019, this disruption, along with the loss of nearly 50% of the workforce in Matamoros because of actions taken during t he strike and a resulting slower than planned start up in 2018, had a significant impact on production during the first quarter of 2019. Given the heavy demand for wind blades in the U.S. market in 2019, our liquidated damages provisions with our customers are quite stringent. As a result, in addition to the impact of the lost production, we have reduced the total consideration expected to be received under a customer contract for the estimated liquidated damages expected to be incurred , in accordance with the terms of the agreement based on missed production commitments, in the three and six months ended June 3 0 , 2019 by $ 6.2 million and $10.0 million, respectively .

We have experienced construction and startup delays with respect to our new manufacturing facility in Yangzhou, China. These delays resulted in us incurring estimated liquidated damages of $4.1 million during the three months ended June 30, 2019. We expect these delays may result in us incurring additional liquidated damages during the balance of 2019 and will adversely impact our results of operations for the balance of 2019.

We also have experienced extended startup delays and challenges with respect to our Newton, Iowa transportation facility, which had an adverse impact on our results of operations for the six months ended June 30, 2019. We expect that these delays and challenges also will have an adverse impact on our results of operations for the balance of 2019.

We maintain our U.S. cash in bank deposit accounts that, at times, exceed U.S. federally insured limits. U.S. bank accounts are guaranteed by the Federal Deposit Insurance Corporation (FDIC) in an amount up to $250,000 during 2019 and 2018. At June 30, 2019 and December 31, 2018, we had $40.2 million and $53.7 million, respectively, of cash in deposit accounts in high quality U.S. banks, which was in excess of FDIC limits. We have not experienced losses in any such accounts.

We also maintain cash in bank deposit accounts outside the U.S. with no insurance. At June 30, 2019, this included $10.0 million in China, $4.8 million in Turkey, $2.7 million in Mexico, $0.7 million in Denmark and $0.3 million in India. We have not experienced losses in these accounts. In addition, at June 30, 2019, we had short-term deposits in interest bearing accounts of $2.1 million in China, which are reported as restricted cash in our condensed consolidated balance sheets. At June 30, 2019, we also had long-term deposits in interest bearing accounts of $0.5 million in Iowa which are reported as restricted cash within the caption other noncurrent assets in our condensed consolidated balance sheets.

Note 4. Accounts Receivable

Accounts receivable consisted of the following:

	June 30, 2019	December 31, 2018
	(in thousands)	
Trade accounts receivable	$ 149,740	$ 172,667
Other accounts receivable	4,451	4,148
Total accounts receivable	$ 154,191	$ 176,815

Note 5. Property, Plant and Equipment, Net

Property, plant and equipment, net consisted of the following:

	June 30, 2019	December 31, 2018
	(in thousands)	
Machinery and equipment	$ 129,432	$ 119,737
Buildings	14,927	15,080
Leasehold improvements	41,443	38,747
Office equipment and software	27,501	26,363
Furniture	21,748	19,579
Vehicles	314	287
Construction in progress	33,202	17,390
Total property, plant and equipment, gross	268,567	237,183
Accumulated depreciation	(87,151)	(77,760)
Property, plant and equipment, net	$ 181,416	$ 159,423

Total depreciation expense for the three months ended June 30, 2019 and 2018 was $6.1 million and $6.0 million, respectively, and $16.6 million and $12.8 million for the six months ended June 30, 2019 and 2018, respectively.

As of June 30, 2019, the cost and accumulated amortization of assets under finance leases were $45.1 million and $14.6 million, respectively.

Note 6. Long-Term Debt, Net of Debt Issuance Costs and Current Maturities

Long-term debt, net of debt issuance costs and current maturities, consisted of the following:

	June 30, 2019	December 31, 2018
	(in thousands)	
Senior revolving loan—U.S.	$ 96,414	$ 90,414
Accounts receivable financing—EMEAI	19,586	14,524
Equipment financing—EMEAI	10,044	12,197
Working capital loans—Asia	2,909	—
Equipment finance lease—U.S.	316	111
Equipment finance lease—EMEAI	6,957	6,738
Equipment finance lease—Mexico	13,486	14,517
Total debt - principal	149,712	138,501
Less: Debt issuance costs	(775)	(878)
Total debt, net of debt issuance costs	148,937	137,623
Less: Current maturities of long-term debt	(33,780)	(27,058)
Long-term debt, net of debt issuance costs and current maturities	$ 115,157	$ 110,565

Note 7. Share-Based Compensation Plans

Our Amended and Restated 2015 Stock Option and Incentive Plan (the 2015 Plan) provides for the issuance of incentive stock options, non-qualified stock options, stock appreciation rights, restricted stock units, restricted stock awards, unrestricted stock awards, cash-based awards, performance share awards and dividend equivalent rights to certain employees, non-employee directors and consultants. Under the 2015 Plan, we have granted awards of stock options, restricted stock units (RSUs) and performance-based restricted stock units (PSUs) to certain employees and non-employee directors.

During the six months ended June 30, 2019 , we issued to certain employees and non-employee directors an aggregate of 1 96,418 timed-based RSUs , 116, 898 PSUs that vest upon achievement of a cumulative, three-year Adjusted EBITDA target measured from January 1, 201 9 through December 31, 202 1 , and 1 65,071 PSUs that vest upon achievement of certain stock price hurdles for the period of the grant date through December 31, 202 1 . A ll of the time-based RSUs vest on the third anniversary date of the grant date. Each of the time-based and performance-based awards are subject to the recipient ’s continued service with us , the terms and conditions of the 2015 Plan and the applicable award agreement.

The share-based compensation expense recognized in the condensed consolidated statements of operations was as follows:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
	(in thousands)			
Cost of goods sold	$ 171	$ 543	$ 348	$ 955
General and administrative expenses	1,766	2,068	2,574	4,044
Total share-based compensation expense	$ 1,937	$ 2,611	$ 2,922	$ 4,999

The share-based compensation expense recognized by award type was as follows:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
	(in thousands)			
RSUs	$ 1,009	$ 1,165	$ 1,931	$ 2,483
Stock options	294	1,041	730	2,031
PSUs	634	405	261	485
Total share-based compensation expense	$ 1,937	$ 2,611	$ 2,922	$ 4,999

As of June 30, 2019, the unamortized cost of the outstanding RSUs and PSUs was $6.5 million and $6.2 million, respectively, which we expect to recognize in the condensed consolidated financial statements over weighted-average periods of approximately 2.1 years and 2.5 years, respectively. Additionally, the total unrecognized cost related to non-vested stock option awards was $2.0 million, which we expect to recognize in the condensed consolidated financial statements over a weighted-average period of approximately 1.7 years. Share-based compensation expense for the six months ended June 30, 2019 includes a reversal of expense related to the probability that certain PSUs will not fully vest.

The summary of activity under our incentive plans is as follows:

		Stock Options			RSUs		PSUs	
	Shares Available for Grant	Shares	Weighted-Average Exercise Price	Options Exercisable	Units	Weighted-Average Grant Date Fair Value	Units	Weighted-Average Grant Date Fair Value
Balance as of December 31, 2018	5,980,605	2,600,694	$ 13.41	1,415,948	425,876	$ 18.75	249,249	$ 22.67
Increase in shares authorized	1,387,123	—	—		—	—	—	—
Granted	(653,478)	175,091	23.08		196,418	26.99	281,969	29.25
Exercised/vested	—	(317,975)	14.83		(78,747)	24.51	—	—
Forfeited/cancelled	49,600	(29,997)	12.96		(11,902)	23.98	(7,701)	24.35
Balance as of June 30, 2019	6,763,850	2,427,813	13.93	1,416,827	531,645	20.82	523,517	26.19

The grant date fair value of RSUs which vested during the six months ended June 30, 2019 was $1.9 million. In addition, during the six months ended June 30, 2019, we repurchased 18,917 shares for $0.6 million related to tax withholding requirements on vested RSU awards.

The following table summarizes the outstanding and exercisable stock option awards as of June 30, 2019 :

	Options Outstanding			Options Exercisable	
Range of Exercise Prices:	Shares	Weighted-Average Remaining Contractual Life (*in years*)	Weighted-Average Exercise Price	Shares	Weighted-Average Exercise Price
$8.49	16,397	1.1	$ 8.49	16,397	$ 8.49
$10.87	1,477,721	5.9	10.87	964,173	10.87
$11.00 to $16.53	320,001	6.6	15.95	203,000	16.10
$17.68 to $18.70	230,460	6.9	18.70	148,331	18.70
$18.77 to $29.26	383,234	9.0	21.43	84,926	20.00
$8.49 to $29.26	2,427,813	6.5	13.93	1,416,827	12.96

Note 8. Leases

We have operating and finance leases for our manufacturing facilities, warehouses, offices, automobiles and certain of our machinery and equipment. Our leases have remaining lease terms of between one and 15 years, some of which may include options to extend the leases up to five years.

The components of lease cost were as follows:

	Three Months Ended June 30, 2019	Six Months Ended June 30, 2019
	(in thousands)	(in thousands)
Operating lease cost	$ 8,184	$ 15,937
Finance lease cost		
Amortization of assets under finance leases	$ 1,707	$ 3,221
Interest on finance leases	388	796
Total finance lease cost	$ 2,095	$ 4,017

Future minimum lease payments under noncancelable leases as of June 30, 2019 were as follows:

	Operating Leases	Finance Leases
	(in thousands)	
Year Ending December 31,		
2019	$ 13,085	$ 4,261
2020	26,228	6,418
2021	22,703	6,195
2022	21,659	5,426
2023	21,077	581
Thereafter	79,107	3
Total future minimum lease payments	183,859	22,884
Less: interest	(47,224)	(2,125)
Total lease liabilities	$ 136,635	$ 20,759

Total lease liabilities as of June 30, 2019 were as follows:

	Operating Leases	Finance Leases
	(in thousands)	
Current operating lease liabilities	$ 17,362	$ —
Current maturities of long-term debt	—	7,267
Noncurrent operating lease liabilities	119,273	—
Long-term debt, net of debt issuance costs and current maturities	—	13,492
Total lease liabilities	$ 136,635	$ 20,759

As previously disclosed in our 2018 Annual Report on Form 10-K and under the previous accounting standard, future minimum lease payments under noncancelable leases as of December 31, 2018 were as follows:

	Operating Leases	Capital Leases
	(in thousands)	
2019	$ 28,173	$ 9,639
2020	26,871	5,098
2021	22,942	4,839
2022	22,065	4,102
2023	21,583	305
Thereafter	61,049	-
Total future minimum lease payments	$ 182,683	23,983
Less: interest		(2,617)
Total lease liabilities		$ 21,366

As of December 31, 2018, the cost and accumulated amortization of assets under capital leases were $41.3 million and $11.7 million, respectively.

Other information related to leases was as follows:

	Three Months Ended June 30, 2019	Six Months Ended June 30, 2019
	(in thousands)	(in thousands)
Supplemental Cash Flow Information		
Cash paid for amounts included in the measurement of lease liabilities:		
Operating cash flows from operating leases	$ 7,849	$ 15,391
Operating cash flows from finance leases	388	796
Financing cash flows from finance leases	2,542	5,471
Right of use assets obtained in exchange for new lease obligations:		
Operating leases	322	12,205
Finance leases	219	4,922

	June 30, 2019
Weighted-Average Remaining Lease Term (In Years):	
Operating leases	7.7
Finance leases	3.4
Weighted-Average Discount Rate:	
Operating leases	7.4%
Finance leases	6.6%

As of June 30, 2019, we have an additional lease related to our new manufacturing facility in Chennai, India of approximately $60 million which has not yet commenced, but which we expect will commence in the first half of 2020 with an initial term of ten years.

Note 9. Income Taxes

Income taxes for the three months ended June 30, 2019 were lower than for the three months ended June 30, 2018 primarily due to the earning mix by jurisdiction in 2019 as compared to 2018. Income taxes for the six months ended June 30, 2019 were lower than for the six months ended June 30, 2018 primarily due to the benefit generated in 2019 as compared to a provision in 2018. Our annualized effective tax rate for 2019 is expected to be higher than in 2018 due to losses not benefitted in jurisdictions where a full valuation allowance is recorded.

We also continue to not record a deferred tax liability related to unremitted foreign earnings as we maintain our assertion to indefinitely reinvest our unremitted foreign earnings.

An ownership change under Sections 382 and 383 of the Internal Revenue Code was deemed to occur in June 2018. In general, a Section 382 and 383 ownership change occurs if there is a cumulative change in our ownership by “5% shareholders” (as defined in the Internal Revenue Code of 1986, as amended) that exceeds 50 percentage points over a rolling three-year period. Based on the analysis performed, however, we do not believe that the Section 382 and 383 annual limitation will materially impact our ability to utilize the tax attributes that existed as of the date of the ownership. Additional ownership changes in the future could result in additional limitations on our net operating loss carryforwards and credits.

No changes in tax law occurred during the quarter which have a material impact on our income tax provision.

Note 10. Restructuring Charges

In May 2019, we announced plans to consolidate certain of our manufacturing facilities, including our plan to shut down the two blade lines operating in our Taicang Port facility and move our tooling operation from Taicang City to the larger Taicang Port facility, thereby expanding our tooling capacity for larger blades and reducing overall costs. We expect to substantially complete these plans by the end of 2019.

In accordance with these plans, during the three months ended June 30, 2019, we incurred total charges of $3.9 million, which included $3.3 million of severance benefits to terminated employees and $0.6 million of other charges, primarily related to exit costs. These charges are located within the caption "Restructuring charges" in the accompanying condensed consolidated statements of operations. We expect to incur additional charges under these plans of approximately $0.5 million throughout the remainder of 2019.

Note 11. Commitments and Contingencies

Legal Proceedings

In March 2015, a complaint was filed against us in the Superior Court of the State of Arizona (Maricopa County) by a former employee, alleging that we had agreed to compensate the employee upon any future sale or initial public offering of the Company. Upon completion of the June 2019 trial, the court ruled as a matter of law in our favor on certain of the claims against us and the jury reached a verdict in our favor on the remainder of the claims against us. As a result of the trial, we were not obligated to pay any damages or losses to the former employee.

From time to time, we are party to various lawsuits, claims, and other legal proceedings that arise in the ordinary course of business, some of which are covered by insurance. Upon resolution of any pending legal matters, we may incur charges in excess of presently established reserves or our insurance policy limits. Our management does not believe that any such charges would, individually or in the aggregate, have a material adverse effect on our financial condition, results of operations or cash flows.

Note 12. Concentration of Customers

Revenues from certain customers in excess of 10 percent of our total consolidated revenues are as follows:

	Three Months Ended June 30,				Six Months Ended June 30,			
	2019		2018		2019		2018	
Customer	Revenues	% of Total	Revenues	% of Total	Revenues	% of Total	Revenues	% of Total
Vestas	$ 142,101	43.0%	$ 67,300	29.2%	$ 270,715	42.9%	$ 152,569	31.5%
GE	92,018	27.8%	75,007	32.5%	176,547	28.0%	162,835	33.6%
Nordex	53,662	16.2%	47,359	20.5%	108,530	17.2%	95,560	19.7%

Trade accounts receivable from certain customers in excess of 10 percent of our total consolidated trade accounts receivable are as follows:

	June 30, 2019	December 31, 2018
Customer	% of Total	% of Total
Vestas	47.0%	46.7%
Nordex	21.6%	25.7%

Note 13. Segment Reporting

Our operating segments are defined geographically as the U.S., Asia, Mexico and EMEAI. Financial results are aggregated into four reportable segments based on quantitative thresholds. All of our segments operate in their local currency, however a portion of the revenue attributable to our China and Mexico segments is derived in U.S. dollars because certain of our domestic subsidiaries are the contracting parties to the associated customer supply agreements.

The following tables set forth certain information regarding each of our segments:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
	(in thousands)			
Revenues by segment:				
U.S.	$ 39,858	$ 44,695	$ 81,486	$ 90,819
Asia	84,699	77,931	153,417	155,601
Mexico	95,362	56,353	180,027	114,317
EMEAI	110,852	51,631	215,621	123,854
Total revenues	$ 330,771	$ 230,610	$ 630,551	$ 484,591
Revenues by geographic location (1):				
U.S.	$ 39,858	$ 44,695	$ 81,486	$ 90,819
China	84,699	77,931	153,417	155,601
Mexico	95,362	56,353	180,027	114,317
Turkey and India	110,852	51,631	215,621	123,854
Total revenues	$ 330,771	$ 230,610	$ 630,551	$ 484,591
Income (loss) from operations:				
U.S. (2)	$ (22,222)	$ (13,293)	$ (36,725)	$ (22,343)
Asia	131	9,386	(8,669)	15,803
Mexico	4,120	227	3,696	4,485
EMEAI	22,468	7,742	34,539	23,212
Total income (loss) from operations	$ 4,497	$ 4,062	$ (7,159)	$ 21,157

	June 30, 2019	December 31, 2018
	(in thousands)	
Property, plant and equipment, net:		
U.S.	$ 33,453	$ 34,825
Asia (China)	39,981	31,924
Mexico	80,041	65,981
EMEAI (Turkey and India)	27,941	26,693
Total property, plant and equipment, net	$ 181,416	$ 159,423

(1) Revenues are attributable to countries based on the location where the product is manufactured or the services are performed.

(2) The losses from operations in our U.S. segment includes corporate general and administrative costs of $9.2 million and $11.0 million for the three months ended June 30, 2019 and 2018, respectively and $17.2 million and $22.2 million for the six months ended June 30, 2019 and 2018, respectively.

Note 14. Subsequent Event

As noted in Note 3, *Significant Risks and Uncertainties* , as a result of Senvion entering into a provisional self-administration procedure as ordered by the Local Court of Hamburg, Germany pursuant to the Insolvency Act in Germany, we reduced recognized revenues and the corresponding accounts receivable to the best estimate of remaining consideration to be received under the contract. Subsequent to June 30, 2019, concurrent with the termination of our previous contract with Senvion, we entered into a new agreement directly with the wind farm operator of the project to whom Senvion was supplying the wind blades we had manufactured. Under this agreement signed in July 2019, the wind farm operator agreed to purchase from us the undelivered wind blades and pay us for the remaining accounts receivable unpaid by Senvion, totaling approximately 90% of the $16.2 million gross amounts invoiced and invoiceable, but not yet collected. We received $6.2 million in cash in July 2019, with the remaining amount to be collected upon final delivery of the remaining wind blades via an irrevocable letter of credit.

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

You should read the following discussion and analysis of our financial condition and results of operations together with our condensed consolidated financial statements and the related notes and other financial information appearing elsewhere in this Quarterly Report on Form 10-Q (Form 10-Q). Some of the information contained in this discussion and analysis or set forth elsewhere in this Form 10-Q, including information with respect to plans and strategy for our business, includes forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those described in or implied by these forward-looking statements as a result of various factors, including those discussed below and elsewhere in this Form 10-Q or in our previously filed Annual Report on Form 10-K, particularly those under "Risk Factors."

OVERVIEW

Our Company

We are the largest and only independent manufacturer of composite wind blades for the wind energy market with a global manufacturing footprint. We enable many of the industry's leading wind turbine original equipment manufacturers (OEM), who have historically relied on in-house production, to outsource the manufacturing of some of their wind blades through our global footprint of advanced manufacturing facilities strategically located to serve large and growing wind markets in a cost-effective manner. Given the importance of wind energy capture, turbine reliability and cost to power producers, the size, quality and performance of wind blades have become highly strategic to our OEM customers. As a result, we have become a key supplier to our OEM customers in the manufacture of wind blades and related precision molding and assembly systems. We have entered into long-term supply agreements pursuant to which we dedicate capacity at our facilities to our customers in exchange for their commitment to purchase minimum annual volumes of wind blade sets, which consist of three wind blades. As of August 7, 2019, our long-term wind and transportation supply agreements provide for minimum aggregate volume commitments from our customers of approximately $3.5 billion and encourage our customers to purchase additional volume up to, in the aggregate, a total contract value of approximately $6.2 billion through the end of 2023. This collaborative dedicated supplier model provides us with contracted volumes that generate significant revenue visibility, drive capital efficiency and allow us to produce wind blades at a lower total delivered cost, while ensuring critical dedicated capacity for our customers. Our wind blade and precision molding and assembly systems manufacturing businesses accounted for approximately 95% of our total net sales for each of the three months ended June 30, 2019 and 2018, respectively, and approximately 96% of our total net sales for each of the six months ended June 30, 2019 and 2018, respectively. We also leverage our advanced composite technology and history of innovation to supply high strength, lightweight and durable composite products to the transportation market.

We divide our business operations into four geographic operating segments - (1) the United States (U.S.), (2) Asia, (3) Mexico and (4) Europe, the Middle East, Africa and India (EMEAI) as follows:

- Our U.S. segment includes (1) the manufacturing of wind blades at our Newton, Iowa plant, (2) the manufacturing of precision molding and assembly systems used to manufacture wind blades at our Warren, Rhode Island facility, (3) the manufacturing of composite solutions for the transportation industry, which we also conduct at our existing Rhode Island facility as well as at our Fall River, Massachusetts facility and at a second manufacturing facility in Newton, Iowa, (4) wind blade inspection and repair services in North America, (5) our advanced engineering center in Kolding, Denmark, which provides technical and engineering resources to our manufacturing facilities and (6) our corporate headquarters, the costs of which are included in general and administrative expenses.
- Our Asia segment includes (1) the manufacturing of wind blades at our facilities in Taicang Port, China; Dafeng, China and Yangzhou, China, the latter of which commenced operations in March 2019, (2) the manufacturing of precision molding and assembly systems at our Taicang City, China facility and (3) wind blade inspection and repair services.
- Our Mexico segment manufactures wind blades from three facilities in Juárez, Mexico and a facility in Matamoros, Mexico at which we commenced operations in July 2018. In November 2018, we entered into a new lease agreement with a third party for a new precision molding and assembly systems manufacturing facility in Juárez, Mexico and we commenced operations at this facility in March 2019. This segment also performs wind blade inspection and repair services.
- Our EMEAI segment manufactures wind blades from two facilities in Izmir, Turkey and also performs wind blade inspection and repair services. In February 2019, we entered into a new lease agreement with a third party for a new manufacturing facility that will be built in Chennai, India and we expect to commence operations at this facility in the first half of 2020.

KEY TRENDS AND RECENT D EVELOPMENTS AFFECTING OUR BUSINESS

We expect that the number of manufacturing lines in transition and start up will increase during the year ending December 30, 2020 and this increase will have an adverse impact on our profitability and results of operations for such periods.

In February 2019, our manufacturing production employees in Matamoros, Mexico, who are represented by a labor union, went on strike demanding an increase in their hourly wage rate and the payment of an annual bonus, even though our collective bargaining agreement does not provide for such incentives. During this work stoppage, production was halted at our Matamoros manufacturing facility from February 15, 2019 until March 2, 2019. Although we ultimately resolved the strike in early March 2019, this disruption, along with the loss of nearly 50% of the workforce in Matamoros because of actions taken during the strike and a slower than planned start up in 2018, had a significant impact on production during the first quarter of 2019. A material amount of production was lost during that time period and the lower production volume will likely extend into the third quarter as new associates are trained and additional manufacturing lines are ramping up. Given the heavy demand for wind blades in the U.S. market in 2019, our liquidated damages provisions with our customers are quite stringent. As a result, in addition to the impact of the lost production, we have reduced the total consideration expected to be received under a customer contract for the liquidated damages incurred in the three and six months ended June 30, 2019 by $6.2 million and $10.0 million, respectively. Although our operations at our Matamoros, Mexico facility improved and stabilized during the three months ended June 30, 2019, we expect these production delays will also impact volume in the third quarter and may result in further liquidated damage charges during the balance of 2019. We estimate that the total impact of the lost volume, liquidated damages and compensation costs related to the settlement of the strike is expected to be approximately $28 million for the twelve months ending December 31, 2019.

In April 2019, one of our customers, Senvion GmbH (Senvion), entered into a provisional self-administration procedure as ordered by the Local Court of Hamburg, Germany pursuant to the Insolvency Act in Germany. As a result of this development, we reevaluated the outstanding accounts receivables due from Senvion, the revenue recognized under our contract with Senvion as well as the property, plant and equipment at our Taicang Port, China facility where we manufactured blades for Senvion. As a result of that reevaluation, we revised our estimate of consideration to be received under the contract, which reduced the revenues recorded in the six months ended June 30, 2019 by $6.7 million. We also revised the useful life of property, plant and equipment which was being used to fulfill the Senvion contract which does not have an alternative use. The reevaluation had an adverse impact on our results of operations for the six months ended June 30, 2019 and the lost production from Senvion will have an adverse effect on our results of operations for the remainder of 2019.

In July 2019, we entered into a new agreement directly with the wind farm operator of the project to whom Senvion was supplying the wind blades we had manufactured. Under this agreement signed in July 2019, the wind farm operator agreed to purchase from us the undelivered wind blades and pay us for the remaining accounts receivable unpaid by Senvion, totaling approximately 90% of the $16.2 million gross amounts invoiced and invoiceable, but not yet collected. We received $6.2 million in cash in July 2019, with the remaining amount to be collected upon final delivery of the remaining wind blades via an irrevocable letter of credit. This adjustment to revenue and accounts receivable will be recognized in third quarter of 2019. The effect of these adjustments on our loss from operations in the condensed consolidated statements of operations totaled $12.6 million in the six months ended June 30, 2019.

We have experienced construction and startup delays with respect to our new manufacturing facility in Yangzhou, China. These delays resulted in us incurring estimated liquidated damages of $4.1 million during the three months ended June 30, 2019. We expect these delays may result in us incurring additional liquidated damages during the balance of 2019 and will adversely impact our results of operations for the balance of 2019.

We also have experienced extended startup delays and challenges with respect to our Newton, Iowa transportation facility, which had an adverse impact on our results of operations for the six months ended June 30, 2019. We expect that these delays and challenges also will have an adverse impact on our results of operations for the balance of 2019.

COMPONENTS OF RESULTS OF OPERATIONS

Net Sales

We recognize revenue from manufacturing services over time as our customers control the product as it is produced, and we may not use or sell the product to fulfill other customers' contracts. Net sales include amounts billed to our customers for our products, including wind blades, precision molding and assembly systems and other products and services, as well as the progress towards the completion of the performance obligation for products in progress, which is determined on a ratio of direct costs incurred to date in fulfillment of the contract to the total estimated direct costs required to complete the performance obligation.

Cost of Goods Sold

Cost of goods sold includes the costs we incur at our production facilities to make products saleable on both products invoiced during the period as well as products in progress towards the completion of each performance obligation. Cost of goods sold includes such items as raw materials, direct and indirect labor and facilities costs, including purchasing and receiving costs, plant management, inspection costs, production process improvement activities, product engineering and internal transfer costs. In addition, all depreciation associated with assets used in the production of our products is also included in cost of goods sold. Direct labor costs consist of salaries, benefits and other personnel related costs for employees engaged in the manufacturing of our products and services.

Startup and transition costs are primarily unallocated fixed overhead costs and underutilized direct labor costs incurred during the period production facilities are transitioning wind blade models and ramping up manufacturing. All direct labor costs are included in the measure of progress towards completion of the relevant performance obligation when determining revenue to be recognized during the period. The cost of sales for the initial wind blades from a new model manufacturing line is generally higher than when the line is operating at optimal production volume levels due to inefficiencies during ramp-up related to labor hours per blade, cycle times per blade and raw material usage. Additionally, these costs as a percentage of net sales are generally higher during the period in which a facility is ramping up to full production capacity due to underutilization of the facility. Manufacturing overhead at each of our facilities includes virtually all indirect costs (including share-based compensation costs) incurred at the plants, including engineering, finance, information technology, human resources and plant management.

General and Administrative Expenses

General and administrative expenses are primarily incurred at our corporate headquarters and our research facilities and include salaries, benefits and other personnel related costs for employees engaged in research and development, engineering, finance, internal audit, information technology, human resources, business development, global operational excellence, global supply chain, in-house legal and executive management. Other costs include outside legal and accounting fees, risk management (insurance), share-based compensation and certain other administrative and global resources costs.

The research and development expenses incurred at our Warren, Rhode Island and Fall River, Massachusetts locations as well as at our Kolding, Denmark advanced engineering center are also included in general and administrative expenses. For the three months ended June 30, 2019 and 2018 and for the six months ended June 30, 2019 and 2018, research and development expenses totaled \$0.3 million, \$0.2 million, \$0.5 million and \$0.4 million, respectively.

Realized Loss on Sale of Assets

Realized loss on sale of assets represents the realized losses on the sale of receivables under supply chain financing arrangements with our customers and realized gains and losses on the sale of other assets at our corporate and manufacturing facilities.

Restructuring Charges

Restructuring charges primarily consist of employee severance, one-time termination benefits and ongoing benefits related to the reduction of our workforce and other costs associated with exit activities, which may include costs related to leased facilities to be abandoned and facility and employee relocation costs.

Other Income (Expense)

Other income (expense) consists primarily of interest expense on our debt borrowings and the amortization of deferred financing costs on such borrowings. Other income (expense) also includes realized gains and losses on foreign currency remeasurement, interest income, losses on extinguishment of debt and miscellaneous income and expense.

Income Tax es

Income taxes consist of federal, state, provincial, local and foreign taxes based on income in jurisdictions in which we operate, including in the U.S., China, Mexico, Turkey and India. The composite income tax rate, tax provisions, deferred tax assets and liabilities vary according to the jurisdiction in which the income or loss arises. Tax laws are complex and subject to different interpretations by management and the respective governmental taxing authorities, and require us to exercise judgment in determining our income tax provision, our deferred tax assets and liabilities and the valuation allowance recorded against our net deferred tax assets.

KEY FINANCIAL METRICS

In addition to measures of financial performance presented in our condensed consolidated financial statements in accordance with GAAP, we use certain other financial measures and operating metrics to analyze our performance. These "non-GAAP" financial measures consist of total billings, EBITDA, adjusted EBITDA, free cash flow and net cash (debt), which help us evaluate growth trends, establish budgets, assess operational efficiencies, oversee our overall liquidity, and evaluate our overall financial performance. The key operating metrics consist of wind blade sets invoiced, estimated megawatts of energy capacity for wind blade sets invoiced, utilization percentage, manufacturing lines dedicated to customers under long-term supply agreements, total manufacturing lines installed, manufacturing lines in startup and manufacturing lines in transition, which help us evaluate our operational performance. We believe that these measures are useful to investors in evaluating our performance.

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
	(in thousands)			
Net sales	$ 330,771	$ 230,610	$ 630,551	$ 484,591
Total billings (1)	$ 304,469	$ 237,355	$ 583,940	$ 461,056
Net income (loss)	$ 1,828	$ (4,053)	$ (10,276)	$ 4,595
EBITDA (1)	$ 11,671	$ 10,101	$ 7,574	$ 31,075
Adjusted EBITDA (1)	$ 19,547	$ 13,477	$ 22,472	$ 40,850
Capital expenditures			$ 37,739	$ 42,310
Free cash flow (1)			$ (39,257)	$ (39,775)

	June 30, 2019	December 31, 2018
	(in thousands)	
Total debt, net of debt issuance costs	$ 148,937	$ 137,623
Net debt (1)	$ (91,048)	$ (53,155)

(1) See below for more information and a reconciliation of total billings, EBITDA, adjusted EBITDA, free cash flow and net debt to net sales, net income (loss), net income (loss), net cash provided by (used in) operating activities and total debt, net of debt issuance costs, respectively, the most directly comparable financial measures calculated and presented in accordance with GAAP.

Total billings

We define total billings, a non-GAAP financial measure, as the total amounts we have invoiced our customers for products and services for which we are entitled to payment under the terms of our long-term supply agreements or other contractual agreements. We monitor total billings, and believe it is useful to present to investors as a supplement to our GAAP measures, because we believe it more directly correlates to sales activity and operations based on the timing of actual transactions with our customers, which facilitates comparison of our performance between periods and provides a more timely indication of trends in sales. Under GAAP, total net sales recognized on products in production represents the total amount that we have recognized as revenue under the cost-to-cost method for services performed during the period under our long-term supply agreements. Under our long-term supply agreements with our customers, we invoice our customers for wind blades once the blades pass certain acceptance procedures and title passes to our customers. Our customers generally pay us for the wind blades between 15 to 90 days after receipt of the invoice based on negotiated payment terms.

EBITDA and Adjusted EBITDA

We define EBITDA, a non-GAAP financial measure, as net income or loss plus interest expense (including losses on extinguishment of debt and net of interest income), income taxes and depreciation and amortization. We define adjusted EBITDA as EBITDA plus any share-based compensation expense, plus or minus any realized gains or losses from foreign currency remeasurement, plus or minus any gains or losses from the sale of assets. Adjusted EBITDA is the primary metric used by our management and our board of directors to establish budgets and operational goals for managing our business and evaluating our performance. In addition, our credit agreement (the Credit Agreement) that we entered into in April 2018 contains minimum EBITDA (as defined in the Credit Agreement) covenants with which we must comply. We monitor adjusted EBITDA as a supplement to our GAAP measures, and believe it is useful to present to investors, because we believe that it facilitates evaluation of our period-to-period operating performance by eliminating items that are not operational in nature, allowing comparison of our recurring core business operating results over multiple periods unaffected by differences in capital structure, capital investment cycles and fixed asset base. In addition, we believe adjusted EBITDA and similar measures are widely used by investors, securities analysts, ratings agencies, and other parties in evaluating companies in our industry as a measure of financial performance and debt-service capabilities.

Our use of EBITDA and adjusted EBITDA have limitations as analytical tools, and you should not consider them in isolation or as substitutes for analysis of our results as reported under GAAP.

In evaluating EBITDA and adjusted EBITDA, you should be aware that in the future, we will incur expenses similar to the adjustments noted herein. Our presentations of EBITDA and adjusted EBITDA should not be construed as suggesting that our future results will be unaffected by these expenses or any unusual or non-recurring items. When evaluating our performance, you should consider EBITDA and adjusted EBITDA alongside other financial performance measures, including our net income (loss) and other GAAP measures.

Free cash flow

We define free cash flow as net cash provided by (used in) operating activities less capital expenditures. We believe free cash flow is a useful measure for investors because it portrays our ability to generate cash from our business for purposes such as repaying maturing debt and funding business acquisitions.

Net cash (debt)

We define net cash (debt) as total unrestricted cash and cash equivalents less the total principal amount of debt outstanding. The total principal amount of debt outstanding is comprised of the long-term debt and current maturities of long-term debt as presented in our condensed consolidated balance sheets adding back any debt issuance costs and discounts. We believe that the presentation of net cash (debt) provides useful information to investors because our management reviews net cash (debt) as part of our oversight of overall liquidity, financial flexibility and leverage. Net cash (debt) is important when we consider opening new plants and expanding existing plants, as well as for capital expenditure requirements.

The following tables reconcile our non-GAAP key financial me asures to the most directly comparable GAAP measures :

Total billings, EBITDA and adjusted EBITDA are reconciled as follows:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
	(in thousands)			
Net sales	$ 330,771	$ 230,610	$ 630,551	$ 484,591
Change in gross contract assets	(26,691)	(1,356)	(43,747)	(25,752)
Foreign exchange impact [(1)]	389	8,101	(2,864)	2,217
Total billings	$ 304,469	$ 237,355	$ 583,940	$ 461,056
Net income (loss)	$ 1,828	$ (4,053)	$ (10,276)	$ 4,595
Adjustments:				
Depreciation and amortization	7,125	6,130	17,784	13,202
Interest expense (net of interest income)	2,243	2,672	4,191	5,969
Loss on extinguishment of debt	—	3,397	—	3,397
Income tax provison (benefit)	475	1,955	(4,125)	3,912
EBITDA	11,671	10,101	7,574	31,075
Share-based compensation expense	1,937	2,611	2,922	4,999
Realized loss on foreign currency remeasurement	967	765	4,769	4,776
Realized loss on sale of assets	4,972	—	7,207	—
Adjusted EBITDA	$ 19,547	$ 13,477	$ 22,472	$ 40,850

(1) Represents the effect of the difference in the exchange rates used by our various foreign subsidiaries when converted to U.S. dollars on the net sales and contract assets as of period-end.

Free cash flow is reconciled as follows:

	Six Months Ended June 30,	
	2019	2018
	(in thousands)	
Net cash provided by (used in) operating activities	$ (1,518)	$ 2,535
Less capital expenditures	(37,739)	(42,310)
Free cash flow	$ (39,257)	$ (39,775)

Net debt is reconciled as follows:

	June 30, 2019	December 31, 2018
	(in thousands)	
Cash and cash equivalents	$ 58,664	$ 85,346
Less total debt, net of debt issuance costs	(148,937)	(137,623)
Less debt issuance costs	(775)	(878)
Net debt	$ (91,048)	$ (53,155)

KEY OPERATING METRICS

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Sets	716	576	1,378	1,145
Estimated megawatts	2,029	1,544	3,890	3,008
Utilization	70%	72%	68%	72%
Dedicated manufacturing lines	54	52	54	52
Manufacturing lines installed	50	40	50	40
Manufacturing lines in operation	30	26	28	26
Manufacturing lines in startup	13	7	14	7
Manufacturing lines in transition	7	7	8	7

Key operating metrics consist of sets invoiced, estimated megawatts of energy capacity for wind blade sets invoiced, utilization, dedicated manufacturing lines, manufacturing lines installed, manufacturing lines in operation, manufacturing lines in startup and manufacturing lines in transition.

Sets represents the number of wind blade sets, consisting of three wind blades each, which we invoiced worldwide during the period. We monitor sets and believe that presenting sets to investors is helpful because we believe that it is the most direct measurement of our manufacturing output during the period. Sets primarily impact net sales and total billings.

Estimated megawatts are the energy capacity to be generated by wind blade sets invoiced in the period. Our estimate is based solely on name-plate capacity of the wind turbine on which the wind blades we manufacture are expected to be installed. We monitor estimated megawatts and believe that presenting estimated megawatts to investors is helpful because we believe that it is a commonly followed measurement of energy capacity across our industry and provides an indication of our share of the overall wind blade market.

Utilization represents the percentage of the number of wind blades invoiced during the period compared to the total potential wind blade capacity of manufacturing lines installed at the end of the period.

Dedicated manufacturing lines are the number of wind blade manufacturing lines that we have dedicated to our customers pursuant to our long-term supply agreements at the end of the period. We monitor dedicated manufacturing lines and believe that presenting this metric to investors is helpful because we believe that the number of dedicated manufacturing lines is the best indicator of demand for the wind blades we manufacture for customers under our long-term supply agreements in any given period. We believe that dedicated manufacturing lines provide an understanding of additional capacity within an existing facility. Dedicated manufacturing lines primarily impacts our net sales and total billings.

Manufacturing lines installed represents the number of wind blade manufacturing lines installed and either in operation, startup or transition at the end of the period. We believe that total manufacturing lines installed provides an understanding of the number of manufacturing lines installed and either in operation, startup or transition.

Manufacturing lines in operation represents the number of wind blade manufacturing lines installed less the number of manufacturing lines in startup and in transition.

Manufacturing lines in startup is the number of wind blade manufacturing lines that were in a startup phase during the pre-production and production ramp up period, pursuant to the opening of a new manufacturing facility, the expansion of an existing manufacturing facility or the addition of new manufacturing lines in an existing manufacturing facility. We monitor and present this metric because we believe it helps investors to better understand the impact of the startup phase of our new manufacturing facilities on our gross profit and net income.

Manufacturing lines in transition is the number of wind blade manufacturing lines that were being transitioned to a new wind blade model during the period. We monitor and present this metric because we believe it helps investors to better understand the impact of these transitions on our gross profit and net income.

Results of Operations

Three Months Ended June 30, 2019 Compared to Three Months Ended June 30, 2018

The following table summarizes certain information relating to our operating results and related percentage of net sales for the three months ended June 30, 2019 and 2018 that has been derived from our unaudited condensed consolidated financial statements.

	Three Months Ended June 30,			
	2019		2018	
	(dollars in thousands)			
Net sales	$ 330,771	100.0%	$ 230,610	100.0%
Cost of sales	285,319	86.3	198,235	86.0
Startup and transition costs	22,901	6.9	17,324	7.5
Total cost of goods sold	308,220	93.2	215,559	93.5
Gross profit	22,551	6.8	15,051	6.5
General and administrative expenses	9,208	2.8	10,989	4.8
Realized loss on sale of assets	4,972	1.5	—	0.0
Restructuring charges	3,874	1.2	—	0.0
Income from operations	4,497	1.3	4,062	1.7
Other expense	(2,194)	(0.7)	(6,160)	(2.7)
Income (loss) before income taxes	2,303	0.6	(2,098)	(1.0)
Income tax provision	(475)	(0.1)	(1,955)	(0.8)
Net income (loss)	$ 1,828	0.6%	$ (4,053)	(1.8)%

Net sales for the three months ended June 30, 2019 increased by $100.2 million or 43.4% to $330.8 million compared to $230.6 million in the same period in 2018. Net sales of wind blades increased by 46.2% to $301.8 million for the three months ended June 30, 2019 as compared to $206.4 million in the same period in 2018. The increase was primarily driven by a 23% increase in the number of wind blades produced during the three months ended June 30, 2019 compared to the same period in 2018 largely as a result of increased production at our Turkey and Mexico facilities and an increase in the year over year number of wind blades still in the production process at the end of the period. This increase was also due to a higher average sales price due to the mix of wind blade models produced during the three months ended June 30, 2019 compared to the same period in 2018. Net sales from the manufacturing of precision molding and assembly systems during the three months ended June 30, 2019 were $12.9 million as compared to $12.3 million in the same period in 2018. Additionally, there was a $4.1 million increase in transporation and other sales during the three months ended June 30, 2019 as compared to the same period in 2018. Total billings for the three months ended June 30, 2019 increased by $67.1 million or 28.3% to $304.5 million compared to $237.4 million in the 2018 period. The impact of the fluctuating U.S. dollar against the Euro in our Turkey operations and the Chinese Renminbi in our China operations on consolidated net sales and total billings for the three months ended June 30, 2019 was a net decrease of 2.7% and 2.9%, respectively, as compared to 2018.

Total cost of goods sold for the three months ended June 30, 2019 was $308.2 million and included $14.7 million related to 13 lines in startup in our plants in Mexico and China and the startup of new wind blade models for a customer in Turkey and $8.2 million of transition costs related to seven lines in transition during the quarter. This compares to total cost of goods sold for the three months ended June 30, 2018 of $215.6 million and included aggregate costs of $17.3 million related to startup costs in our new plants in Turkey and Mexico, the startup costs related to a new customer in Taicang, China and transition costs related to the seven lines in transition during the quarter. Cost of goods sold as a percentage of net sales remained consistent during the three months ended June 30, 2019 as compared to the same period in 2018, driven primarily by the impact of savings in raw material costs and foreign currency fluctuations, offset by the extended startup of our Newton, Iowa transportation facility, a significant increase in underutilized labor in Matamoros, Mexico and a $5.6 million increase in startup and transition costs. The impact of the fluctuating U.S. dollar against the Euro, Turkish Lira, Chinese Renminbi and Mexican Peso decreased consolidated cost of goods sold by 5.0% for three months ended June 30, 2019 as compared to 2018.

General and administrative expenses for the three months ended June 30, 2019 totaled $9.2 million, or 2.8% of net sales, compared to $11.0 million, or 4.8% of net sales, for the same period in 2018. The decrease was primarily driven by lower incentive compensation and a reduction in the performance assumptions related to certain of our share-based plans.

Realized loss on sale of asset s for the three months ended June 30, 2019 totaled $5.0 million , comprised of $3.1 million of realized losses on the sale of assets at our corporate and manufacturing facilities and $1.9 million of realized losses on the sale of receivables under supply ch ain financing arrangements with our customers. There were no corresponding charges for the same period in 2018 .

Restructuring charges, primarily relating to the closing of our Taicang City, China manufacturing facility, for the three months ended June 30, 2019 totaled $3.9 million with no corresponding charges for the same period in 2018. These charges included $3.3 million of severance benefits to terminated employees and $0.6 million of other charges, primarily related to exit costs.

Other expense totaled $2.2 million for the three months ended June 30, 2019 as compared to $6.2 million for the same period in 2018. The decrease was primarily due to a $3.8 million decrease in interest expense in the three months ended June 30, 2019 as compared to the same period in 2018 primarily related to the loss on the extinguishment of debt of $3.4 million in the 2018 period.

Income taxes reflected a provision of $0.5 million for the three months ended June 30, 2019 as compared to a provision of $2.0 million for the same period in 2018. The decrease was primarily due to the earnings mix by jurisdiction in the three months ended June 30, 2019 as compared to the same period in 2018. Our annualized effective tax rate for the 2019 period is higher than in the comparable 2018 period due to losses not benefited in jurisdictions where a full valuation allowance is recorded.

Net income for the three months ended June 30, 2019 was $1.8 million as compared to a net loss of $4.1 million in the same period in 2018. The increase was primarily due to the reasons set forth above. The diluted earnings per share was $0.05 for the three months ended June 30, 2019, compared to a net loss per share of $0.12 for the three months ended June 30, 2018.

Segment Discussion

The following table summarizes our net sales and income (loss) from operations by our four geographic operating segments for the three months ended June 30, 2019 and 2018 that has been derived from our unaudited condensed consolidated financial statements.

	Three Months Ended June 30,	
	2019	2018
Net Sales	(in thousands)	
U.S.	$ 39,858	$ 44,695
Asia	84,699	77,931
Mexico	95,362	56,353
EMEAI	110,852	51,631
Total net sales	$ 330,771	$ 230,610

	Three Months Ended June 30,	
	2019	2018
Income (Loss) from Operations	(in thousands)	
U.S. (1)	$ (22,222)	$ (13,293)
Asia	131	9,386
Mexico	4,120	227
EMEAI	22,468	7,742
Total income from operations	$ 4,497	$ 4,062

(1) Includes the costs of our corporate headquarters and our advanced engineering center in Kolding, Denmark totaling $9.2 million and $11.0 million for the three months ended June 30, 2019 and 2018, respectively.

U.S. Segment

Net sales for the three months ended June 30, 2019 decreased by $4.8 million or 10.8% to $39.9 million compared to $44.7 million in the same period in 2018. Net sales of wind blades decreased to $26.6 million during the three months ended June 30, 2019 as compared to $33.7 million in the same period of 2018. The decrease was primarily due to a 29% reduction in the number of wind blades produced in the three months ended June 30, 2019 as compared to the same period in 2018 because of wind blade model transitions and a decline in the average sales prices of the same wind blade models delivered in both periods as a result of savings in raw material costs, a portion of which we share with our customer. Net sales from the manufacturing of precision molding and assembly systems during the three months ended June 30, 2019 were $1.2 million compared to $2.4 million during the same period in 2018. Additionally, there was a $3.4 million increase in transportation and other sales during the three months ended June 30, 2019 as compared to the same period in 2018.

The loss from operations in the U.S. segment for the three months ended June 30, 2019 was $ 22.2 million as compared to a loss of $ 13.3 million in the same period in 2018 . As previously discussed, t he loss amount s include corporate general and administrative costs of $ 9.2 million and $ 11.0 million for the three months ended June 30, 2019 and 2018 , respectively. The 2019 operating results were also unfavorably impacted by the extended startup at our Newton, Iowa transportation facility and by the lower wind blade volume discussed above.

Asia Segment

Net sales for the three months ended June 30, 2019 increased by $6.8 million or 8.7% to $84.7 million compared to $77.9 million in the same period in 2018. Net sales of wind blades were $78.4 million in the three months ended June 30, 2019 compared to $67.2 million in the same period of 2018. This increase was primarily due to an increase in the year over year number of wind blades still in the production process at the end of the period, primarily in Yangzhou, China, notwithstanding a 5% decrease year over year in the number of wind blades produced. This decrease was driven by the reduced production in Taicang, China as a result of our customer entering into a provisional self-administration procedure concerning its assets as ordered by the Local Court of Hamburg, Germany pursuant to the Insolvency Act in Germany as well as a slightly lower average sales price due to the mix of wind blade models produced during the three months ended June 30, 2019 compared to the same period in 2018. Net sales from the manufacturing of precision molding and assembly systems totaled $5.7 million during the three months ended June 30, 2019 compared to $9.7 million during the same period in 2018. The impact of the fluctuating U.S. dollar against the Chinese Renminbi had an unfavorable impact of 2.8% on net sales during the three months ended June 30, 2019 as compared to the same period in 2018.

The income from operations in the Asia segment for the three months ended June 30, 2019 was $0.1 million as compared to income from operations of $9.4 million in the same period in 2018. This decrease was driven by the insolvency of a customer as noted above and the resultant revenue reduction relating to our contract with that customer and the related restructuring charges in Taicang as well as the startup costs in Yangzhou, China. This was partially offset by the fluctuating U.S. dollar against the Chinese Renminbi which had a favorable impact of 4.0% on cost of goods sold for the three months ended June 30, 2019 as compared to the 2018 period.

Mexico Segment

Net sales in the three months ended June 30, 2019 increased by $39.0 million or 69.2% to $95.4 million compared to $56.4 million in the same period in 2018. The increase reflects a 38% net increase in overall wind blade volume and an increase in the average sales price of wind blades due to a change in the mix of wind blades between the two periods. Net sales from the manufacturing of precision molding and assembly systems during the three months ended June 30, 2019 were $6.0 million compared to $0.2 million during the same period in 2018.

The income from operations in the Mexico segment for the three months ended June 30, 2019 was $4.1 million as compared to income from operations of $0.2 million in the same period in 2018. The increase was due primarily to the overall increase in wind blade volume noted above as well as from savings in raw material costs, partially offset by increased startup and transition costs. The fluctuating U.S. dollar relative to the Mexican Peso did not have a significant impact on cost of goods sold for the three months ended June 30, 2019 as compared to 2018.

EMEAI Segment

Net sales during the three months ended June 30, 2019 increased by $59.2 million or 114.7% to $110.9 million compared to $51.6 million in the same period in 2018. The increase was driven by an 111% increase in wind blade volume at our two Turkey plants. This increase was partially offset by a decrease in the average sales price of wind blades delivered in the comparative periods. The fluctuating U.S. dollar relative to the Euro had an unfavorable impact of 5.8% on net sales during the three months ended June 30, 2019 as compared to 2018.

The income from operations in the EMEAI segment for the three months ended June 30, 2019 was $22.5 million as compared to $7.7 million in the same period in 2018. The increase was primarily driven by the increased wind blade production at our two Turkey plants, lower startup costs and the favorable impact on cost of goods sold of the fluctuation of the U.S. dollar relative to the Turkish Lira and Euro of 13.7% for the three months ended June 30, 2019 as compared to 2018, partially offset by higher material costs related to a new product at our second Turkey plant.

Six Months Ended June 30, 20 19 Compared to Six Months Ended June 30, 2018

The following table summarizes certain information relating to our operating results and related percentage of net sales for the six months ended June 30, 2019 and 2018 that has been derived from our unaudited condensed consolidated financial statements.

	Six Months Ended June 30,			
	2019		2018	
	(dollars in thousands)			
Net sales	$ 630,551	100.0%	$ 484,591	100.0%
Cost of sales	568,357	90.2	409,223	84.5
Startup and transition costs	41,079	6.5	32,059	6.6
Total cost of goods sold	609,436	96.7	441,282	91.1
Gross profit	21,115	3.3	43,309	8.9
General and administrative expenses	17,193	2.7	22,152	4.6
Realized loss on sale of assets	7,207	1.1	—	0.0
Restructuring charges	3,874	0.6	—	0.0
Income (loss) from operations	(7,159)	(1.1)	21,157	4.3
Other expense	(7,242)	(1.2)	(12,650)	(2.6)
Income (loss) before income taxes	(14,401)	(2.3)	8,507	1.7
Income tax benefit (provision)	4,125	0.7	(3,912)	(0.8)
Net income (loss)	$ (10,276)	(1.6)%	$ 4,595	0.9%

Net sales for the six months ended June 30, 2019 increased by $146.0 million or 30.1% to $630.6 million compared to $484.6 million in the same period in 2018. Net sales of wind blades increased by 31.4% to $578.7 million for the six months ended June 30, 2019 as compared to $440.5 million in the same period in 2018. The increase was primarily driven by a 19% increase in the number of wind blades produced during the six months ended June 30, 2019 compared to the same period in 2018 largely as a result of increased production at our Turkey and Mexico facilities and an increase in the year over year number of wind blades still in the production process at the end of the period. The increase was also due to a higher average sales prices due to the mix of wind blade models produced during the six months ended June 30, 2019 compared to the same period in 2018. Net sales from the manufacturing of precision molding and assembly systems during the six months ended June 30, 2019 were $24.1 million as compared to $23.1 million in the same period in 2018. Additionally, there was a $6.8 million increase in transporation and other sales during the six months ended June 30, 2019 as compared to the same period in 2018. Total billings for the six months ended June 30, 2019 increased by $122.9 million or 26.7% to $583.9 million compared to $461.1 million in the same period in 2018. The impact of the fluctuating U.S. dollar against the Euro in our Turkey operations and the Chinese Renminbi in our China operations on consolidated net sales and total billings for the six months ended June 30, 2019 was a net decrease of 3.1% and 3.3%, respectively, as compared to 2018.

Total cost of goods sold for the six months ended June 30, 2019 was $609.4 million and included $30.8 million related to 14 lines in startup in our plants in Mexico and China and the startup of new wind blade models for a customer in Turkey and $10.3 million of transition costs related to the eight lines in transition during the period. This compares to total cost of goods sold for the six months ended June 30, 2018 of $441.3 million and included aggregate costs of $32.1 million related to startup costs in our new plants in Turkey and Mexico, the startup costs related to a new customer in Taicang, China and the transition of seven lines. Cost of goods sold as a percentage of net sales increased by six percentage points during the six months ended June 30, 2019 as compared to the same period in 2018, driven primarily by the extended startup of our Newton, Iowa transportation facility, a significant increase in underutilized labor in Matamoros, Mexico and a $9.0 million increase in startup and transition costs, partially offset by the impact of savings in raw material costs and foreign currency fluctuations. The impact of the fluctuating U.S. dollar against the Euro, Turkish Lira, Chinese Renminbi and Mexican Peso decreased consolidated cost of goods sold by 5.7% for the six months ended June 30, 2019 as compared to 2018.

General and administrative expenses for the six months ended June 30, 2019 totaled $17.2 million, or 2.7% of net sales, compared to $22.2 million, or 4.6% of net sales, for the same period in 2018. The decrease was primarily driven by lower incentive compensation and a reduction in the performance assumptions related to certain of our share-based plans.

Realized loss on sale of assets for the six months ended June 30, 2019 totaled $7.2 million, comprised of $4.1 million of realized losses on the sale of assets at our corporate and manufacturing facilities and $3.1 million of realized losses on the sale of receivables under supply chain financing arrangements with our customers. There were no corresponding charges for the same period in 2018.

Restructuring charges , primarily relating to the closing of our Taicang C ity, China manufacturing facility, for the six months ended June 30, 2019 totaled $ 3 . 9 million with no corresponding charges for the same period in 2018. These charges included $3.3 million of severance benefits to terminated employees and $0. 6 million of other charges, primarily related to exit costs.

Other expense totaled $7.2 million for the six months ended June 30, 2019 as compared to $12.7 million for the same period in 2018. The decrease was primarily due to a $5.2 million decrease in interest expense in the six months ended June 30, 2019 as compared to the same period in 2018 primarily related to the loss on the extinguishment of debt of $3.4 million in the 2018 period.

Income taxes reflected a benefit of $4.1 million for the six months ended June 30, 2019 as compared to a provision of $3.9 million for the same period in 2018. The decrease in taxes was primarily due to the pretax loss in 2019 as compared to pretax income in 2018. Our annualized effective tax rate for the 2019 period is higher than in the comparable 2018 period due to losses not benefited in jurisdictions where a full valuation allowance is recorded.

Net loss for the six months ended June 30, 2019 was $10.3 million as compared to net income of $4.6 million in the same period in 2018. The decrease was primarily due to the reasons set forth above. The net loss per share was $0.29 for the six months ended June 30, 2019, compared to diluted earnings per share of $0.13 for the six months ended June 30, 2018.

Segment Discussion

The following table summarizes our net sales and income (loss) from operations by our four geographic operating segments for the six months ended June 30, 2019 and 2018 that has been derived from our unaudited condensed consolidated financial statements.

	Six Months Ended June 30,	
	2019	**2018**
Net Sales	**(in thousands)**	
U.S.	$ 81,486	$ 90,819
Asia	153,417	155,601
Mexico	180,027	114,317
EMEAI	215,621	123,854
Total net sales	$ 630,551	$ 484,591

	Six Months Ended June 30,	
	2019	**2018**
Income (loss) from Operations	**(in thousands)**	
U.S. (1)	$ (36,725)	$ (22,343)
Asia	(8,669)	15,803
Mexico	3,696	4,485
EMEAI	34,539	23,212
Total income (loss) from operations	$ (7,159)	$ 21,157

(1) Includes the costs of our corporate headquarters and our advanced engineering center in Kolding, Denmark totaling $17.2 million and $22.2 million for the six months ended June 30, 2019 and 2018, respectively.

U.S. Segment

Net sales in the six months ended June 30, 2019 decreased by $9.3 million or 10.3% to $81.5 million compared to $90.8 million in the same period in 2018. Net sales of wind blades decreased to $58.5 million during the six months ended June 30, 2019 from $72.6 million in the same period of 2018. The decrease was primarily due to a 19% reduction in the number of wind blades produced in the six months ended June 30, 2019 as compared to the same period in 2018 because of wind blade model transitions and a decline in the average sales prices of the same wind blade models delivered in both periods as a result of savings in raw material costs, a portion of which we share with our customer. Net sales from the manufacturing of precision molding and assembly systems during the six months ended June 30, 2019 were $1.4 million compared to $4.2 million during the same period in 2018. Additionally, there was a $7.7 million increase in transportation and other sales during the six months ended June 30, 2019 as compared to the same period in 2018.

The loss from operations in the U.S. segment for the six months ended June 30, 2019 was $ 36.7 million as compared to a loss of $ 22.3 million in the same period in 2018 . As previously discussed, the loss amount s include corporate general and administrative costs of $ 17.2 million and $22.2 million for the six months ended June 30, 2019 and 2018, respectively . The 2019 operating results were unfavorably impacted by the extende d startup at our Newton, Iowa transportation facility and by the lower wind blade volume discussed above.

Asia Segment

Net sales in the six months ended June 30, 2019 decreased by $2.2 million or 1.4% to $153.4 million compared to $155.6 million in the same period in 2018. Net sales of wind blades were $140.5 million in the six months ended June 30, 2019 as compared to $135.4 million in the same period of 2018. The increase in the net sales of wind blades was primarily due to an increase in the year over year number of wind blades still in the production process at the end of the period, primarily in Yangzhou, China, notwithstanding a 7% decrease year over year in the number of wind blades produced driven by the reduced production in Taicang, China as a result of Senvion's insolvency. Net sales from the manufacturing of precision molding and assembly systems totaled $11.9 million during the 2019 period compared to $17.9 million during the six months ended June 30, 2018. The impact of the fluctuating U.S. dollar against the Chinese Renminbi had a unfavorable impact of 2.8% on net sales during the six months ended June 30, 2019 as compared to the same period in 2018.

The loss from operations in the Asia segment for the six months ended June 30, 2019 was $8.7 million as compared to income from operations of $15.8 million in the same period in 2018. This decrease was driven by the insolvency of a customer as noted above and the resultant revenue reduction relating to our contract with that customer and the related restructuring charges in Taicang as well as the startup costs in Yangzhou, China. This was partially offset by the fluctuating U.S. dollar against the Chinese Renminbi which had a favorable impact of 4.4% on cost of goods sold for the six months ended June 30, 2019 as compared to the 2018 period.

Mexico Segment

Net sales in the six months ended June 30, 2019 increased by $65.7 million or 57.5% to $180.0 million compared to $114.3 million in the same period in 2018. The increase reflects a 31% net increase in overall wind blade volume, an increase in the average sales price of wind blades due to a change in the mix of wind blades between the two periods and an increase in the year over year number of wind blades still in the production process at the end of the period, primarily in Matamoros, Mexico. Net sales from the manufacturing of precision molding and assembly systems during the six months ended June 30, 2019 were $10.8 million compared to $1.0 million during the same period in 2018.

The income from operations in the Mexico segment for the six months ended June 30, 2019 was $3.7 million as compared to $4.5 million in the same period in 2018. The decrease was driven by increased startup and transition costs, partially offset by the overall increase in wind blade volume noted above as well as from savings in raw material costs.

EMEAI Segment

Net sales during the six months ended June 30, 2019 increased by $91.8 million or 74.1% to $215.6 million compared to $123.9 million in the same period in 2018. The increase was driven by a 91% increase in wind blade production at our two Turkey plants. This increase was partially offset by a decrease in the average sales price of wind blades delivered in the comparative periods. The fluctuating U.S. dollar relative to the Euro had an unfavorable impact of 6.9% on net sales during the six months ended June 30, 2019.

The income from operations in the EMEAI segment for the six months ended June 30, 2019 was $34.5 million as compared to $23.2 million in the same period in 2018. The increase was primarily driven by the increased wind blade production at our two Turkey plants, lower startup costs and the favorable impact on cost of goods sold of the fluctuation of the U.S. dollar relative to the Turkish Lira and Euro of 15.0% for the six months ended June 30, 2019 as compared to 2018, partially offset by higher material costs related to a new product at our second Turkey plant.

Liquidity and Capital Resources

Our primary needs for liquidity have been, and in the future will continue to be, capital expenditures, new facility startup costs, the impact of transitions, working capital and debt service costs. Our capital expenditures have been primarily related to machinery and equipment for new facilities or facility expansions. Historically, we have funded our working capital needs through cash flows from operations, the proceeds received from our credit facilities and from proceeds received from the issuance of stock. We had net borrowings on financing arrangements of $6.3 million for the six months ended June 30, 2019 as compared to net borrowings on financing arrangements of $5.9 million in the comparable period of 2018. As of June 30, 2019 and December 31, 2018, we had $149.7 million and $138.5 million in outstanding indebtedness, excluding debt issuance costs, respectively. As of June 30, 2019, we had an aggregate of $79.2 million of remaining capacity and $77.3 million of remaining availability under our various credit facilities. Working capital requirements have increased as a result of our overall growth and the need to fund higher accounts receivable and

inventor y levels as our business volumes have increased as well as the increased level of transitions . Based upon current and anticipated levels of operations, we believe that cash on hand, available credit facilities and cash flow from operations will be adequate to fund our working capital and capital expenditure requirements and to make required payments of principal and interest on our indebtedness over the next twelve months.

We anticipate that any new facilities and future facility expansions will be funded through cash flows from operations, the incurrence of other indebtedness and other potential sources of liquidity. At June 30, 2019 and December 31, 2018, we had unrestricted cash, cash equivalents and short-term investments totaling $58.7 million and $85.3 million, respectively. The June 30, 2019 balance includes $18.5 million of cash located outside of the United States, including $10.0 million in China, $4.8 million in Turkey, $2.7 million in Mexico, $0.7 million in Denmark and $0.3 million in India. Our ability to repatriate funds from China to the United States is subject to a number of restrictions imposed by the Chinese government. We repatriate funds through several technology license and corporate/administrative service agreements. We are compensated quarterly based on agreed upon royalty rates for such intellectual property licenses and quarterly fees for those services. Certain of our subsidiaries are limited in their ability to declare dividends without first meeting statutory restrictions of the People's Republic of China, including retained earnings as determined under Chinese-statutory accounting requirements. Until 50% ($21.6 million as of December 31, 2018) of registered capital is contributed to a surplus reserve, our Chinese operations can only pay dividends equal to 90% of after-tax profits (10% must be contributed to the surplus reserve). Once the surplus reserve fund requirement is met, our Chinese operations can pay dividends equal to 100% of after-tax profit assuming other conditions are met. At December 31, 2018, the amount of the surplus reserve fund was $6.5 million.

Operating Cash Flows

	Six Months Ended June 30,	
	2019	2018
	(in thousands)	
Net income (loss)	$ (10,276)	$ 4,595
Depreciation and amortization	17,784	13,202
Realized loss on sale of assets	7,207	—
Restructuring charges	3,874	—
Share-based compensation expense	2,922	4,999
Loss on extinguishment of debt	—	3,397
Other non-cash items	103	260
Changes in assets and liabilities	(23,132)	(23,918)
Net cash provided by (used in) operating activities	$ (1,518)	$ 2,535

Net cash used in operating activities totaled $1.5 million for the six months ended June 30, 2019 and was primarily the result of a $23.1 million net increase in working capital and a $10.3 million net loss, partially offset by $17.8 million of depreciation and amortization, $7.2 million realized loss on sale of assets, a $3.9 million restructuring charge and $2.9 million of share-based compensation expense. The key components of the net increase in working capital include a $46.7 million increase in contract assets and liabilities, a $18.4 million increase in other noncurrent assets, a $14.4 million increase in other current assets, a $6.8 million increase in prepaid expenses, and a $4.1 million increase in inventories. These increases were partially offset by a $35.3 million increase in accounts payable and accrued expenses, a $17.9 million decrease in accounts receivable, a $6.1 million decrease in operating lease right of use assets and operating lease liabilities and a $6.1 million increase in accrued warranty. The changes in contract assets and liabilities, accounts receivable, accounts payable and accrued expenses and accrued warranty are primarily the result of the timing of production in the period.

Net cash provided by operating activities totaled $2.5 million for the six months ended June 30, 2018 and was primarily the result of $4.6 million of net income, $13.2 million of depreciation and amortization, $5.0 million of share-based compensation expense and a $3.4 million loss on the extinguishment of debt, mostly offset by a net increase of $23.9 million in working capital. The key components of the net increase in working capital include a $26.7 million increase in contract assets and liabilities, a $4.0 million increase in other noncurrent assets and a $1.5 million increase in inventory. These increases were partially offset by a $3.6 million increase in accrued warranty, a $2.1 million decrease in accounts receivable and a $1.9 million increase in accounts payable and accrued expenses. The working capital changes in contract assets and liabilities, accounts receivable, accounts payable and accrued expenses and accrued warranty are primarily the result of the timing of production in the period.

Investing Cash Flows

	Six Months Ended June 30,	
	2019	2018
	(in thousands)	
Purchases of property, plant and equipment	$ (37,739)	$ (42,310)
Net cash used in investing activities	$ (37,739)	$ (42,310)

Net cash used in investing activities totaled $37.7 million and $42.3 million for the six months ended June 30, 2019 and 2018, respectively, driven primarily by capital expenditures for new facilities and expansion or improvements at existing facilities. The capital expenditures for the six months ended June 30, 2019 primarily related to our new manufacturing facility in Yangzhou, China, our second manufacturing facility in Turkey, our new tooling facility and the expansion of one of our blade manufacturing facilities in Juárez, Mexico and continued investments in our other existing facilities. The capital expenditures for the six months ended June 30, 2018 primarily related to our new wind blade plant in Matamoros, Mexico, the expansion and improvements at our Taicang, China facility and second wind blade plant in Turkey, and costs to enhance our information technology systems.

We anticipate fiscal year 2019 capital expenditures of between $95 million to $100 million and we estimate that the cost that we will incur after June 30, 2019 to complete our current projects in process will be approximately $31.7 million. We have used, and will continue to use, cash flows from operations, the proceeds received from our credit facilities and the proceeds received from the issuance of stock for major projects currently being undertaken, which include new manufacturing facilities in Chennai, India, Yangzhou, China and our tooling facility in Juárez, Mexico and the continued investment in our existing China, Mexico and Turkey wind blade facilities.

Financing Cash Flows

	Six Months Ended June 30,	
	2019	2018
	(in thousands)	
Proceeds from revolving and term loans	6,000	74,435
Repayments of revolving and term loans	—	(74,972)
Net proceeds from accounts receivable financing	5,062	11,924
Proceeds from working capital loans	2,909	—
Principal repayments of finance leases	(5,471)	—
Net repayments of other debt	(2,211)	(5,449)
Debt issuance costs	—	(281)
Proceeds from exercise of stock options	4,716	1,307
Repurchase of common stock including shares withheld in lieu of income taxes	(559)	(272)
Net cash provided by financing activities	$ 10,446	$ 6,692

The net cash provided by financing activities totaled $10.4 million for the six months ended June 30, 2019 compared to $6.7 million of net cash provided by financing activities in the comparable period of 2018. Net cash provided by financing activities for the six months ended June 30, 2019 primarily reflects the net proceeds from revolving loans and accounts receivable financing, proceeds from the exercise of stock options and proceeds from working capital loans, partially offset by principal repayments of finance leases and other growth-related debt. Net cash provided by financing activities for the six months ended June 30, 2018 primarily reflects the net proceeds from term loans, accounts receivable financing and the exercise of stock options, partially offset by net repayments of term loans and other growth-related debt.

Share Repurchases

During the six months ended June 30, 2019, we repurchased 18,917 shares of our common stock for $0.6 million related to tax withholding requirements on restricted stock units which vested during the period.

Description of Our Indebtedness

Senior Financing Agreements (U.S.):

In December 2017, we amended our previous credit facility (the Credit Facility) to consent to the restructuring of our parent and subsidiaries, decreased the variable interest rate to LIBOR, with a 1.0% floor, plus 5.25% and the amendment of certain capital expenditure and other financial covenants. In connection with this amendment, the amendment fee of $0.4 million was recorded as a debt issuance cost and was being amortized to interest expense over the remaining term of the Credit Facility (36 months) using the effective interest method. As of December 31, 2017, the aggregate outstanding balance under the Credit Facility was $74.1 million.

In April 2018, we entered into a new credit agreement (the Credit Agreement) with four lenders consisting of a multi-currency, revolving credit facility in an aggregate principal amount of $150.0 million, including a $25.0 million letter of credit sub-facility. On the closing date we drew down $75.4 million on the revolving credit facility in connection with the closing of the transactions contemplated by the Credit Agreement and used the proceeds to pay all outstanding amounts due and payable under the Credit Facility, various fees and expenses and accrued interest. All borrowings and amounts outstanding under the Credit Agreement are scheduled to mature in April 2023. In May 2019, the Credit Agreement was further amended to revise the definition of Consolidated EBITDA as utilized in certain of the financial covenants of the Credit Agreement.

In connection with the Credit Agreement, in the second quarter of 2018 we expensed $2.0 million of deferred financing costs associated with the Credit Facility and a $1.4 million prepayment penalty within the caption "Loss on extinguishment of debt" in the condensed consolidated income statements. In addition, we incurred debt issuance costs related to the Credit Agreement totaling $1.0 million which will be amortized to interest expense over the five-year term of the Credit Agreement using the effective interest method.

Interest accrues at a variable rate equal to LIBOR plus a margin of 1.0% (4.4% as of June 30, 2019), which may vary based on our total net leverage ratio as defined in the Credit Agreement. Interest is paid monthly and we are not obligated to make any principal repayments prior to the maturity date provided we are not in default under the Credit Agreement. We may prepay the borrowings under the Credit Agreement without penalty.

In April 2018, we also entered into an interest rate swap arrangement to fix a notional amount of $75.0 million of the Credit Agreement at an effective interest rate of 4.2% for a period of five years. As of June 30, 2019 and December 31, 2018, there was $96.4 million and $90.4 million outstanding under the Credit Agreement, respectively.

Due to the revolving credit facility's variable interest rate of LIBOR plus a competitive spread, we estimate that fair-value approximates the face value of these notes.

Accounts Receivable, Secured and Unsecured Financing:

EMEAI : During 2014, we renewed a general credit agreement, as amended, with a financial institution in Turkey to provide up to 21.0 million Euro of short-term collateralized financing on invoiced accounts receivable of one of our customers in Turkey. Interest accrues annually at a fixed rate of 9.1% and is paid quarterly. In December 2014, and later amended, we obtained an additional $5.0 million of unsecured financing in Turkey under the credit agreement, increasing the total facility. All credit agreement terms remained the same. The credit agreement does not have a maturity date, however the limits are reviewed in September of each year. During the fourth quarter of 2018, we replaced the accounts receivable financing facility with the accounts receivable assignment agreement discussed below. As of June 30, 2019 and December 31, 2018, there were no amounts outstanding under the unsecured financing facility.

In 2014, we entered into a credit agreement with a Turkish financial institution to provide up to $16.0 million of short-term financing of which $10.0 million is collateralized financing on invoiced accounts receivable of one of our customers in Turkey, $5.0 million is unsecured financing and $1.0 million is related to letters of guarantee. Interest accrues at a variable rate of the three month Euro Interbank Offered Rate (EURIBOR) plus 6.5%. During the first quarter of 2018, the collateralized financing on invoiced accounts receivables and unsecured financing facilities were retired and the letters of guarantee limit was adjusted, later amended to 1.4 million Euro (approximately $1.6 million as of June 30, 2019). No amounts were outstanding under this agreement as of June 30, 2019 and December 31, 2018.

In 2016, we entered into a general credit agreement, as amended, with a Turkish financial institution to provide up to 39.0 million Euro (approximately $44.3 million as of June 30, 2019) of short-term financing of which 28.0 million Euro (approximately $31.8 million as of June 30, 2019) is collateralized financing based on invoiced accounts receivables of two of our customers in Turkey, 10.0 million Euro (approximately $11.4 million as of June 30, 2019) for the collateralized financing of capital expenditures and 1.0 million Euro (approximately $1.1 million as of June 30, 2019) related to letters of guarantee. Interest on the collateralized

financing based on invoiced accounts receivables of two of our customers in Turkey accrues at a fixed rate of 7.5 % as of June 30, 2019 and is paid quarterly with a matur ity date equal to four months from the applicable invoice date. Interest on the collateralized capital expenditures financing accrues at the one month EURIBOR plus 6.75% (6.75% as of June 30, 2019) with monthly principal repayments beginning in October 201 7 with a final maturity date of December 2021. Interest on the letters of guarantee accrues at 2.00% annually with an amended final maturity date of July 2020 . As of June 30, 2019 and December 31, 2018 , there was $1 0 . 0 million and $1 2 . 2 million outstanding under the collateralized financing of capital expenditures line, respectively. Additionally, as of June 30, 2019 and December 31, 2018 , there was $ 19.6 million and $ 14 . 5 million, respectively, outstanding under the collateralized financing based on invoic ed accounts receivables.

In the fourth quarter of 2018, we entered into a credit agreement, as amended, with a Turkish financial institution to provide up to 118.6 million Turkish Lira (approximately $20.6 million as of June 30, 2019) of collateralized financing on invoiced accounts receivable of one of our customers in Turkey. Interest accrues at a fixed rate of 3.9% and is paid quarterly. The credit agreement does not have a maturity date, however the limit will be reviewed in October of each year. No amounts were outstanding under this agreement as of June 30, 2019 and December 31, 2018.

Due to the short-term nature of the unsecured financings in the EMEAI segment, we estimate that fair-value approximates the face value of the notes.

Asia : In February 2017, we entered into a credit agreement, as amended, with a Chinese financial institution to provide an unsecured credit line of up to 210.0 million Renminbi (approximately $30.5 million as of June 30, 2019) which can be used for the purpose of domestic and foreign currency loans, issuing customs letters of guarantee or other transactions approved by the lender. Interest on the credit line accrues at the Chinese central bank interest rate plus an applicable margin (4.8% as of June 30, 2019) and can be paid monthly, quarterly or at the time of the debt's maturity (extended to January 2020). As of June 30, 2019 and December 31, 2018, there were 77.8 million Renminbi (approximately $11.3 million) and 92.8 million Renminbi (approximately $13.5 million) of letters of guarantee used for customs clearance outstanding, respectively. As of June 30, 2019, there was 20.0 million Renminbi (approximately $2.9 million) of working capital loans outstanding. As of December 31, 2018, there were no working capital loan amounts outstanding.

In March 2018, we entered into a credit agreement, as amended, with a Chinese financial institution to provide an unsecured credit line of up to 100.0 million Renminbi (approximately $14.5 million as of June 30, 2019) which can be used as customs letters of guarantee. Interest on the credit line accrues at the Chinese central bank interest rate plus an applicable margin (4.8% at June 30, 2019) and can be paid monthly, quarterly or at the time of the debt's maturity (in March 2023). As of June 30, 2019, there were 71.9 million Renminbi (approximately $10.5 million) of letters of guarantee used for customs clearance outstanding. As of December 31, 2018, there were no amounts outstanding under this credit agreement.

Equipment Leases and Other Arrangements: We have entered into certain finance lease, sale-leaseback and equipment financing arrangements in the U.S., Mexico and EMEAI for equipment used in our operations as well as for office use. These leases bear interest at rates ranging from 3.0% to 9.0% annually, and principal and interest are payable monthly. As of June 30, 2019 and December 31, 2018, there was an aggregate total of $20.8 million and $21.4 million outstanding under these arrangements, respectively.

Operating Leases: We lease various facilities and equipment under non-cancelable operating lease agreements. As of June 30, 2019, we leased a total of approximately 6.2 million square feet in Dafeng, China; Taicang City, China; Yangzhou, China; Chennai, India; Izmir, Turkey; Kolding, Denmark; Newton, Iowa; Juárez, Mexico; Matamoros, Mexico; Santa Teresa, New Mexico; Warren, Rhode Island; Fall River, Massachusetts, as well as our corporate office in Scottsdale, Arizona. The terms of these leases range from 12 months to 120 months with annual payments approximating $28 million for the full year 2019.

Off-Balance Sheet Transactions

We are not presently involved in any off-balance sheet arrangements, including transactions with unconsolidated special-purpose or other entities that would materially affect our financial position, results of operations, liquidity or capital resources, other than our operating lease arrangements and the accounts receivable assignment agreements described below. Furthermore, we do not have any relationships with special-purpose or other entities that provide off-balance sheet financing; liquidity, market risk or credit risk support; or engage in leasing or other services that may expose us to liability or risks of loss that are not reflected in condensed consolidated financial statements and related notes.

Our Mexico segment has an existing accounts receivable assignment agreement with a financial institution under which the financial institution buys, on a non-recourse basis, the accounts receivable amounts related to one of our Mexico segment's customers at a discount calculated based on an effective annual rate of LIBOR plus 2.75%.

In Septem ber 2018, our U.S. and Mexico segments entered into an accounts receivable assignment agreement , as amended, with a financial institution. Under this agreement, the financial institution buys, on a non-recourse basis, the accounts receivable amounts relate d to one of our U.S. (Iowa location) and Mexico segment's customers at a discount calculated based on LIBOR plus 1.2 5%.

In the fourth quarter of 2018, our EMEAI segment entered into an accounts receivable assignment agreement with a financial institution. Under this agreement, the financial institution may buy, on a non-recourse basis, up to 15.0 million Euro (approximately $17.1 million as of June 30, 2019) of the accounts receivable amounts related to one of our EMEAI segment's customers at a discount calculated based on EURIBOR plus 2.65%.

In the fourth quarter of 2018, our EMEAI segment entered into an accounts receivable assignment agreement with a financial institution. Under this agreement, the financial institution buys, on a non-recourse basis, the accounts receivable amounts related to one of our EMEAI segment's customers at a discount calculated based on EURIBOR plus 0.75%.

In the first quarter of 2019, our Asia and Mexico segments entered into separate accounts receivable purchase agreements with a financial institution. Under these agreements, the financial institution may buy, on a non-recourse basis, and hold outstanding at any time up to $30.0 million of a customer's accounts receivable amounts in each of our Asia and Mexico segments (up to a combined total of $60.0 million) at a discount calculated based on the three month LIBOR plus 1.0% and the number of days from the date of purchase to maturity.

As the receivables are purchased by the financial institutions under the agreements as described in the preceding paragraphs, the receivables were removed from our balance sheet. During the three and six months ended June 30, 2019, $147.7 million and $280.2 million of receivables were sold under the accounts receivable assignment agreements described above, respectively.

Critical Accounting Policies and Estimates

There have been no other significant changes to our critical accounting policies as disclosed in our Annual Report on Form 10-K.

Recent Accounting Pronouncements

For a discussion of recent accounting pronouncements, see Note 1, *Recently Issued Accounting Pronouncements* to our condensed consolidated financial statements.

Contractual Obligations

During the six months ended June 30, 2019, there have been no material changes to the contractual obligations reported in our Annual Report on Form 10-K, other than in the ordinary course of business.

Item 3. *Quantitative and Qualitative Disclosures about Market Risk*

We are exposed to market risk in the ordinary course of our business. These market risks are principally limited to changes in foreign currency exchange rates and commodity prices. We currently do not hedge our exposure to these risks.

Foreign Currency Risk. We conduct international operations in China, Mexico, Turkey and India. Our results of operations are subject to both currency transaction risk and currency translation risk. We incur currency transaction risk whenever we enter into either a purchase or sale transaction using a currency other than the local currency of the transacting entity. With respect to currency translation risk, our financial condition and results of operations are measured and recorded in the relevant domestic currency and then translated into U.S. dollars for inclusion in our condensed consolidated financial statements. In recent years, exchange rates between these foreign currencies and the U.S. dollar have fluctuated significantly and may do so in the future. A hypothetical change of 10% in the exchange rates for the countries above would have resulted in a change to income from operations of approximately $5.4 million and $1.6 million for the six months ended June 30, 2019 and 2018, respectively.

Commodity Price Risk . We are subject to commodity price risk under agreements for the supply of our raw materials. We have not hedged our commodity price exposure. We generally lock in pricing for our key raw materials for 12 months which protects us from price increases within that period. As many of our raw material supply agreements have meet or release clauses, if raw materials prices go down, we are able to benefit from the reductions in price. We believe that this adequately protects us from increases in raw material prices and also enables us to take full advantage of decreases.

Resin an d resin systems are the primary commodities for which we do not have fixed pricing. Approximately 30 % of the resin and resin systems we use is purchased under contracts controlled by two of our customers and therefore they receive/bear 100% of any increase or decrease in resin costs further limiting our exposure to price fluctuations. We believe that a 10% change in the price of resin and resin systems for the customers in which we are exposed to fluctuating prices would have had an impact to income from operations of approximately $ 3 . 8 million and $ 3.7 million for the six months ended June 30, 2019 and 2018 , respectively. Furthermore, this amount does not include the portion of any increase or decrease that would be shared with our customers under our long-term supply agreements, whi ch is generally 70%.

Interest Rate Risk. As of June 30, 2019, our EMEAI segment has one general credit agreement with a Turkish financial institution which is tied to EURIBOR. This agreement had collateralized financing of capital expenditures outstanding as of June 30, 2019 of $10.0 million. In addition, as of June 30, 2019, our Credit Agreement includes interest on the unhedged principal amount of $21.4 million which is tied to LIBOR. Also, as of June 30, 2019, our Asia segment has one credit agreement with a Chinese financial institution which is tied to the Chinese central bank interest rate. This agreement had working capital loans outstanding totaling $2.9 million. The EMEAI and Asia credit agreements and our Credit Agreement noted above are the only variable rate debt that we had outstanding as of June 30, 2019 as all remaining working capital loans, accounts receivable financing and capital lease obligations are fixed rate instruments and are not subject to fluctuations in interest rates. Due to the relatively low LIBOR and EURIBOR rates in effect as of June 30, 2019, a 10% change in the LIBOR or EURIBOR rate would not have had a material impact on our future earnings, fair values or cash flows.

Item 4. *Controls and Procedures*

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures that are designed to provide reasonable assurance that information required to be disclosed in our reports under the Exchange Act is recorded, processed, summarized, and reported within the time period specified in the SEC’s rules and forms and that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure.

As required by Rule 13a-15(b) promulgated under the Exchange Act, our management, with the participation of our Chief Executive Officer and Chief Financial Officer, evaluated the design and operating effectiveness as of June 30, 2019 of our disclosure controls and procedures, as defined in Rule 13a-15(e) promulgated under the Exchange Act. Based on this evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective as of June 30, 2019.

Changes in Internal Control Over Financial Reporting

There were no changes in our internal control over financial reporting during the three months ended June 30, 2019 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II—OTHER INFORMATION

Item 1. ***Legal Proceedings***

In March 2015, a complaint was filed against us in the Superior Court of the State of Arizona (Maricopa County) by a former employee, alleging that we had agreed to compensate the employee upon any future sale or initial public offering of the Company. Upon completion of the June 2019 trial, the court ruled as a matter of law in our favor on certain of the claims against us and the jury reached a verdict in our favor on the remainder of the claims against us. As a result of the trial, we were not obligated to pay any damages or losses to the former employee.

From time to time, we are party to various lawsuits, claims, and other legal proceedings that arise in the ordinary course of business, some of which are covered by insurance. Upon resolution of any pending legal matters, we may incur charges in excess of presently established reserves or our insurance policy limits. Our management does not believe that any such charges would, individually or in the aggregate, have a material adverse effect on our financial condition, results of operations or cash flows.

Item 1A. ***Risk Factors***

There have been no material changes to the Risk Factors (Part I, Item 1A) in our Annual Report on Form 10-K, which could materially affect our business, financial condition, and/or future results.

Item 2. ***Unregistered Sales of Equity Securities and Use of Proceeds***

Issuer Purchases of Equity Securities

Not applicable.

Use of Proceeds

Not applicable.

Item 3. ***Defaults Upon Senior Securities***

Not applicable.

Item 4. ***Mine Safety Disclosures***

Not applicable.

Item 5. ***Other Information***

None.

Item 6. *E xhibits*

Exhibit Number	Exhibit Description
10.1	Amendment No. 1 dated as of May 24, 2019 to Credit Agreement, dated as of April 6, 2018, among Registrant, JPMorgan Chase Bank, N.A., as Administrative Agent, and the other lender parties thereto
31.1	Certification of Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2	Certification of Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.1*	Certification of Chief Executive Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
32.2*	Certification of Chief Financial Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document

* The certifications furnished in Exhibits 32.1 and 32.2 hereto are deemed to accompany this Quarterly Report on Form 10-Q and will not be deemed “filed” for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, except to the extent that the Registrant specifically incorporates it by reference.

SIGNAT URES

Pursuant to the requirements of Section 13 or 15(d) 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.

TPI COMPOSITES, INC.

Date: August 7, 2019

By: /s/ Bryan Schumaker

Bryan Schumaker
Chief Financial Officer
(Principal Financial and Accounting Officer)

Exhibit 10.1

EXECUTION VERSION

AMENDMENT NO. 1

Dated as of May 24, 2019

to

CREDIT AGREEMENT

Dated as of April 6, 2018

THIS AMENDMENT NO. 1 (this " Amendment ") is made as of May 24, 2019 by and among TPI COMPOSITES, INC. a Delaware corporation (the " Borrower "), the financial institutions listed on the signature pages hereof and JPMORGAN CHASE BANK, N.A., as Administrative Agent (the " Administrative Agent '), under that certain Credit Agreement dated as of April 6, 2018 by and among the Borrower, the Lenders and the Administrative Agent (as amended, restated, supplemented or otherwise modified from time to time, the " Credit Agreement "). Capitalized terms used herein and not otherwise defined herein shall have the respective meanings given to them in the Credit Agreement.

WHEREAS, the Borrower has requested that the requisite Lenders and the Administrative Agent agree to make certain amendments to the Credit Agreement;

WHEREAS, the Borrower, the Lenders party hereto and the Administrative Agent have so agreed on the terms and conditions set forth herein;

NOW, THEREFORE, in consideration of the premises set forth above, the terms and conditions contained herein, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Borrower, the Lenders party hereto and the Administrative Agent hereby agree to enter into this Amendment.

1. Amendments to the Credit Agreement . Effective as of March 31, 2019, the parties hereto agree that the Credit Agreement shall be amended as follows:

(a) Section 1.01 of the Credit Agreement is hereby amended to add the following definitions thereto:

" BHC Act Affiliate " of a party means an "affiliate' (as such term is defined under, and interpreted in accordance with, 12 U.S.C. 1841(k)) of such party.

" Covered Entity " means any of the following:

(i) a "covered entity" as that term is defined in, and interpreted in accordance with, 12 C.F.R. § 252.82(b);

(ii) a "covered bank" as that term is defined in, and interpreted in accordance with, 12 C.F.R. § 47.3(b); or

(iii) a "covered FSI" as that term is defined in, and interpreted in accordance with, 12 C.F.R. § 382.2(b).

" Covered Party " has the meaning assigned to it in Section 9.20.

" Default Right " has the meaning assigned to that term in, and shall be interpreted in accordance with, 12 C.F.R. §§ 252.81, 47.2 or 382.1, as applicable.

" QFC " has the meaning assigned to the term "qualified financial contract" in, and shall be interpreted in accordance with, 12 U.S.C. 5390(c)(8)(D).

" QFC Credit Support " has the meaning assigned to it in Section 9.20.

" Supported QFC " has the meaning assigned to it in Section 9.20.

" U.S. Special Resolution Regime " has the meaning assigned to it in Section 9.20.

(b) The definition of "Consolidated EBITDA" set forth in Section 1.01 of the Credit Agreement is hereby amended and restated to read in its entirety as follows:

" Consolidated EBITDA " means, with reference to any period, Consolidated Net Income plus, without duplication and to the extent deducted from revenues in determining Consolidated Net Income, (i) Consolidated Interest Expense, (ii) expense for income taxes paid or accrued, (iii) depreciation, (iv) amortization, (v) stock-based compensation expenses, (vi) any net cash loss resulting from foreign exchange transactions, (vii) non-cash expenses, charges and losses (excluding losses or discounts from the sale of receivables), (viii) charges related to losses or discounts from the sale of receivables not to exceed, during such period, $7,500,000 and (ix) restructuring charges and the 2019 write-offs for Senvion receivables in an aggregate amount not to exceed, during such period, the greater of $15,000,000 and 10% of Consolidated EBITDA (calculated prior to giving effect to this clause (ix)) *minus* , to the extent included in Consolidated Net Income, (1) interest income, (2) income tax credits and refunds (to the extent not netted from tax expense), (3) any net cash gain resulting from foreign exchange transactions, (4) any non-cash gain as a result of any reversal of a charge referred to in clause (v) above by reason of a decrease in the value of any Equity Interest and (5) the amount of any cash payment made during such period in respect of any non-cash expense, charge or loss that is accounted for in a prior period which was added to Consolidated Net Income to determine Consolidated EBITDA for such prior period and which does not otherwise reduce Consolidated Net Income for the current period, all calculated for the Borrower and its Subsidiaries in accordance with GAAP on a consolidated basis.

(c) A new Section 1.07 of the Credit Agreement is hereby added to read as follows:

SECTION 1.07. Divisions . For all purposes under the Loan Documents, in connection with any division or plan of division under Delaware law (or any comparable event under a different jurisdiction's laws): (a) if any asset, right, obligation or liability of any Person becomes the asset, right, obligation or liability of a different Person, then it shall be deemed to have been transferred from the original Person to the subsequent Person, and (b) if any new Person comes into existence, such new Person shall be deemed to have been organized and acquired on the first date of its existence by the holders of its Equity Interests at such time.

(d) Section 5.01(e) of the Credit Agreement is hereby amended and restated to read as follows:

(e) no later than sixty (60) days after the beginning of each fiscal year of the Borrower (beginning with the first full fiscal year after the Effective Date), and no earlier than the last day of the year immediately prior to such fiscal year, a copy of the plan and forecast (including a projected consolidated and consolidating balance sheet, income statement and funds flow statement) of the Borrower for each quarter of such fiscal year in form reasonably satisfactory to the Administrative Agent;

(e) A new Section 9.20 of the Credit Agreement is hereby added to read as follows:

SECTION 9.20. Acknowledgement Regarding Any Supported QFCs . To the extent that the Loan Documents provide support, through a guarantee or otherwise, for Swap Agreements or any other agreement or instrument that is a QFC (such support " QFC Credit Support " and each such QFC a " Supported QFC "), the parties acknowledge and agree as follows with respect to the resolution power of the Federal Deposit Insurance Corporation under the Federal Deposit Insurance Act and Title II of the Dodd-Frank Wall Street Reform and Consumer Protection Act (together with the regulations promulgated thereunder, the " U.S. Special Resolution Regimes ") in respect of such Supported QFC and QFC Credit Support (with the provisions below applicable notwithstanding that the Loan Documents and any Supported QFC may in fact be stated to be governed by the laws of the State of New York and/or of the United States or any other state of the United States):

In the event a Covered Entity that is party to a Supported QFC (each, a " Covered Party ") becomes subject to a proceeding under a U.S. Special Resolution Regime, the transfer of such Supported QFC and the benefit of such QFC Credit Support (and any interest and obligation in or under such Supported QFC and such QFC Credit Support, and any rights in property securing such Supported QFC or such QFC Credit Support) from such Covered Party will be effective to the same extent as the transfer would be effective under the U.S. Special Resolution Regime if the Supported QFC and such QFC Credit Support (and any such interest, obligation and rights in property) were governed by the laws of the United States or a state of the United States. In the event a Covered Party or a BHC Act Affiliate of a Covered Party becomes subject to a proceeding under a U.S. Special Resolution Regime, Default Rights under the Loan Documents that might otherwise apply to such Supported QFC or any QFC Credit Support that may be exercised against such Covered Party are permitted to be exercised to no greater extent than such Default Rights could be exercised under the U.S. Special Resolution Regime if the Supported QFC and the Loan Documents were governed by the laws of the United States or a state of the United States. Without limitation of the foregoing, it is understood and agreed that rights and remedies of the parties with respect to a Defaulting Lender shall in no event affect the rights of any Covered Party with respect to a Supported QFC or any QFC Credit Support.

(f) Section 2.20(c) of the Credit Agreement is hereby amended by replacing the reference to the term "Senior Secured Net Leverage Ratio" contained therein with a reference to "Total Net Leverage Ratio".

2. Conditions of Effectiveness . The effectiveness of this Amendment (the " Amendment No. 1 Effective Date ") is subject to the satisfaction of the following conditions precedent:

(a) The Administrative Agent (or its counsel) shall have received counterparts of (i) this Amendment duly executed by the Borrower, the Required Lenders and the Administrative Agent and (ii) the Consent and Reaffirmation attached hereto duly executed by the Subsidiary Guarantors.

(b) The Administrative Agent shall have received payment of the Administrative Agent's and its affiliates' fees and reasonable and documented out-of-pocket expenses (including reasonable fees and expenses of counsel for the Administrative Agent) in connection with this Amendment and the other Loan Documents to the extent earned, due and owing and otherwise reimbursable pursuant to the terms of the Credit Agreement or this Amendment.

3. Representations and Warranties of the Borrower . The Borrower hereby represents and warrants as follows:

(a) This Amendment and the Credit Agreement as modified hereby constitute legal, valid and binding obligations of the Borrower, enforceable in accordance with their respective terms, subject to applicable bankruptcy, insolvency, reorganization, moratorium or other laws affecting creditors' rights generally and subject to general principles of equity, regardless of whether considered in a proceeding in equity or at law.

(b) As of the date hereof and after giving effect to the terms of this Amendment, (i) no Default or Event of Default has occurred and is continuing and (ii) the representations and warranties of the Borrower set forth in the Credit Agreement are true and correct in all material respects (except to the extent such representation or warranty is qualified by materiality or Material Adverse Effect, in which case such representation and warranty is true and correct in all respects).

4. Reference to and Effect on the Credit Agreement .

(a) Upon the effectiveness hereof, each reference to the Credit Agreement in the Credit Agreement or any other Loan Document shall mean and be a reference to the Credit Agreement as amended hereby.

(b) The Credit Agreement and all other documents, instruments and agreements executed and/or delivered in connection therewith shall remain in full force and effect and are hereby ratified and confirmed.

(c) The execution, delivery and effectiveness of this Amendment shall not operate as a waiver of any right, power or remedy of the Administrative Agent or the Lenders, nor constitute a waiver of any provision of the Credit Agreement or any other documents, instruments and agreements executed and/or delivered in connection therewith.

(d) This Amendment is a Loan Document.

5. Governing Law . This Amendment shall be construed in accordance with and governed by the law of the State of New York.

6. Headings. Section headings used herein are for convenience of reference only, are not part of this Amendment and shall not affect the construction of, or be taken into consideration in interpreting, this Amendment.

7. Counterparts. This Amendment may be executed in counterparts (and by different parties hereto on different counterparts), each of which shall constitute an original, but all of which when taken together shall constitute a single contract. Delivery of an executed counterpart of a signature page of this Amendment by telecopy, e-mailed .pdf or any other electronic means that reproduces an image of the actual executed signature page shall be effective as delivery of a manually executed counterpart of this Amendment.

[Signature Pages Follow]

IN WITNESS WHEREOF, this Amendment has been duly executed as of the day and year first above written.

TPI COMPOSITES, INC.,
as the Borrower

By: /s/ William E. Siwek
William E. Siwek
President

JPMORGAN CHASE BANK, N.A.,
individually as a Lender, as the Swingline Lender, as an Issuing Bank and as Administrative Agent

By: /s/ Lynn Braun
Lynn Braun
Executive Director

WELLS FARGO BANK, NATIONAL ASSOCIATION
as a Lender

By: /s/ Zane Hwang
Zane Hwang
Vice President

CAPITAL ONE, NATIONAL ASSOCIATION
as a Lender

By: /s/ Seth Meier
Seth Meier
Director

BANK OF AMERICA, N.A.,
as a Lender

By: /s/ Alain Pelane
Alain Pelane
Vice President

CONSENT AND REAFFIRMATION

Each of the undersigned hereby acknowledges receipt of a copy of the foregoing Amendment No. 1 to the Credit Agreement dated as of April 6, 2018 (as amended, restated, supplemented or otherwise modified, the " Credit Agreement ") by and among TPI Composites, Inc., a Delaware corporation, the financial institutions from time to time party thereto (the " Lenders ") and JPMorgan Chase Bank, N.A., as Administrative Agent (the " Administrative Agent "), which Amendment No. 1 is dated as of May 24, 2019 (the " Amendment "). Capitalized terms used in this Consent and Reaffirmation and not defined herein shall have the meanings given to them in the Credit Agreement. Without in any way establishing a course of dealing by the Administrative Agent or any Lender, each of the undersigned consents to the Amendment and reaffirms the terms and conditions of the Credit Agreement and any other Loan Document executed by it and acknowledges and agrees that such Credit Agreement and each and every such Loan Document executed by the undersigned in connection with the Credit Agreement remains in full force and effect and is hereby reaffirmed, ratified and confirmed. All references to the Credit Agreement contained in the above-referenced documents shall be a reference to the Credit Agreement as so modified by the Amendment.

Dated: May 24, 2019

[Signature Page Follows]

COMPOSITE SOLUTIONS, INC.

By: /s/ William E. Siwek
Name: William E. Siwek
Title: President

TPI ARIZONA, LLC

By: /s/ William E. Siwek
Name: William E. Siwek
Title: President

TPI CHINA, LLC

By: /s/ William E. Siwek
Name: William E. Siwek
Title: President

TPI CHINA II, LLC

By: /s/ William E. Siwek
Name: William E. Siwek
Title: President

TPI, INC.

By: /s/ William E. Siwek
Name: William E. Siwek
Title: President

TPI IOWA, LLC

By: /s/ William E. Siwek
Name: William E. Siwek
Title: President

TPI IOWA II, LLC

By: /s/ William E. Siwek
Name: William E. Siwek
Title: President

TPI MEXICO, LLC

By: /s/ William E. Siwek
Name: William E. Siwek
Title: President

TPI MEXICO III, LLC

By: /s/ William E. Siwek
Name: William E. Siwek
Title: President

TPI MEXICO V, LLC

By: /s/ William E. Siwek
Name: William E. Siwek
Title: President

TPI MEXICO VII, LLC

By: /s/ William E. Siwek
Name: William E. Siwek
Title: President

TPI HOLDINGS MEXICO, LLC

By: /s/ William E. Siwek
Name: William E. Siwek
Title: President

TPI TECHNOLOGY, INC.

By: /s/ William E. Siwek
Name: William E. Siwek
Title: President

TPI TURKEY, LLC

By: /s/ William E. Siwek
Name: William E. Siwek
Title: President

TPI TURKEY IZBAS, LLC

By: /s/ William E. Siwek
Name: William E. Siwek
Title: President

Exhibit 31.1

CERTIFICATION

I, Steven C. Lockard, certify that:

1. I have reviewed this quarterly report on Form 10-Q of TPI Composites, 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 7, 2019

By: /s/ Steven C. Lockard
Steven C. Lockard
Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION

I, Bryan Schumaker, certify that:

1. I have reviewed this quarterly report on Form 10-Q of TPI Composites, 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 7, 2019

By: / s/ Bryan Schumaker
Bryan Schumaker
Chief Financial Officer
(Principal Financial and Accounting Officer)

Exhibit 32.1

Certification Pursuant To
18 U.S.C. Section 1350,
As Adopted Pursuant To
Section 906 of the Sarbanes-Oxley Act of 2002

I, Steven C. Lockard, Chief Executive Officer of TPI Composites, Inc., certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

1. the report on Form 10-Q of TPI Composites, Inc. for the three months ended June 30, 2019 (the "Report") fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. Section 78m or 78o(d)); and

2. the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of TPI Composites, Inc.

Date: August 7, 2019

By: /s/ Steven C. Lockard
Steven C. Lockard
Chief Executive Officer
(Principal Executive Officer)

Exhibit 32.2

Certification Pursuant To
18 U.S.C. Section 1350,
As Adopted Pursuant To
Section 906 of the Sarbanes-Oxley Act of 2002

I, Bryan Schumaker, Chief Financial Officer of TPI Composites, Inc., certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

1. the report on Form 10-Q of TPI Composites, Inc. for the three months ended June 30, 2019 (the "Report") fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. Section 78m or 78o(d)); and

2. the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of TPI Composites, Inc.

Date: August 7, 2019

By: /s/ Bryan Schumaker
Bryan Schumaker
Chief Financial Officer
(Principal Financial and Accounting Officer)