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FIRST SOLAR, INC.

FORM 10-Q
(Quarterly Report)

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UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

Form 10-Q

(Mark one)

[x] **QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the quarterly period ended March 31, 2017

or

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

For the transition period from to

Commission file number: 001-33156

First Solar, Inc .

(Exact name of registrant as specified in its charter)

Delaware	**20-4623678**
(State or other jurisdiction of incorporation or organization)	*(I.R.S. Employer Identification No.)*

350 West Washington Street, Suite 600
Tempe, Arizona 85281
(Address of principal executive offices, including zip code)

(602) 414-9300
(Registrant's telephone number, including area code)

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 [x] No [ ]

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes [x] No [ ]

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, 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 [x]	Accelerated filer [ ]	Non-accelerated filer [ ]
Smaller reporting company [ ]	Emerging growth company [ ]	*(Do not check if a smaller reporting 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 [x]

As of April 28, 2017 , 104,290,092 shares of the registrant's common stock, $0.001 par value per share, were outstanding.

FIRST SOLAR, INC. AND SUBSIDIARIES

FORM 10-Q FOR THE QUARTERLY PERIOD ENDED MARCH 31, 2017

TABLE OF CONTENTS

		Page
Part I.	Financial Information	
Item 1.	Condensed Consolidated Financial Statements (Unaudited):	
	Condensed Consolidated Statements of Operations for the three months ended March 31, 2017 and 2016	3
	Condensed Consolidated Statements of Comprehensive Income for the three months ended March 31, 2017 and 2016	4
	Condensed Consolidated Balance Sheets as of March 31, 2017 and December 31, 2016	5
	Condensed Consolidated Statements of Cash Flows for the three months ended March 31, 2017 and 2016	6
	Notes to Condensed Consolidated Financial Statements	7
Item 2.	Management’s Discussion and Analysis of Financial Condition and Results of Operations	46
Item 3.	Quantitative and Qualitative Disclosures About Market Risk	63
Item 4.	Controls and Procedures	63
Part II.	Other Information	64
Item 1.	Legal Proceedings	64
Item 1A.	Risk Factors	64
Item 5.	Other Information	64
Item 6.	Exhibits	64
Signature		65

PART I. FINANCIAL INFORMATION

Item 1. ***Condensed Consolidated Financial Statements (Unaudited)***

FIRST SOLAR, INC. AND SUBSIDIARIES

CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(In thousands, except per share amounts)
(Unaudited)

	Three Months Ended March 31,	
	2017	2016
Net sales	$ 891,791	$ 876,068
Cost of sales	807,607	598,457
Gross profit	84,184	277,611
Operating expenses:		
Research and development	22,799	30,187
Selling, general and administrative	48,199	67,503
Production start-up	1,150	—
Restructuring and asset impairments	20,031	—
Total operating expenses	92,179	97,690
Operating (loss) income	(7,995)	179,921
Foreign currency gain (loss), net	246	(3,240)
Interest income	6,417	6,406
Interest expense, net	(9,169)	(4,642)
Other income, net	25,861	35,553
Income before taxes and equity in earnings of unconsolidated affiliates	15,360	213,998
Income tax expense	(5,679)	(28,031)
Equity in earnings of unconsolidated affiliates, net of tax	(552)	9,669
Net income	$ 9,129	$ 195,636
Net income per share:		
Basic	$ 0.09	$ 1.92
Diluted	$ 0.09	$ 1.90
Weighted-average number of shares used in per share calculations:		
Basic	104,103	101,853
Diluted	104,410	102,919

See accompanying notes to these condensed consolidated financial statements.

FIRST SOLAR, INC. AND SUBSIDIARIES

CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(In thousands)
(Unaudited)

	Three Months Ended March 31,	
	2017	2016
Net income	$ 9,129	$ 195,636
Other comprehensive income, net of tax:		
Foreign currency translation adjustments	4,641	5,542
Unrealized (loss) gain on marketable securities and restricted investments	(4,790)	5,966
Unrealized (loss) gain on derivative instruments	(2,154)	106
Other comprehensive (loss) income, net of tax	(2,303)	11,614
Comprehensive income	$ 6,826	$ 207,250

See accompanying notes to these condensed consolidated financial statements.

FIRST SOLAR, INC. AND SUBSIDIARIES

CONDENSED CONSOLIDATED BALANCE SHEETS
(In thousands, except share data)
(Unaudited)

	March 31, 2017	December 31, 2016
ASSETS		
Current assets:		
Cash	$ 1,656,245	$ 1,347,155
Marketable securities	789,442	607,991
Accounts receivable trade, net	151,186	266,687
Accounts receivable, unbilled and retainage	70,536	206,739
Inventories	432,602	363,219
Balance of systems parts	33,269	62,776
Project assets	—	700,800
Notes receivable, affiliate	19,600	15,000
Prepaid expenses and other current assets	177,358	217,462
Total current assets	3,330,238	3,787,829
Property, plant and equipment, net	691,767	629,142
PV solar power systems, net	452,074	448,601
Project assets	960,089	762,148
Deferred tax assets, net	251,453	255,152
Restricted cash and investments	355,237	371,307
Investments in unconsolidated affiliates and joint ventures	228,469	234,610
Goodwill	14,462	14,462
Other intangibles, net	85,902	87,970
Inventories	99,714	100,512
Notes receivable, affiliates	49,994	54,737
Other assets	85,104	77,898
Total assets	$ 6,604,503	$ 6,824,368
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 143,455	$ 148,730
Income taxes payable	5,002	12,562
Accrued expenses	185,337	262,977
Current portion of long-term debt	11,540	27,966
Deferred revenue	24,754	308,704
Other current liabilities	156,963	146,942
Total current liabilities	527,051	907,881
Accrued solar module collection and recycling liability	169,071	166,277
Long-term debt	265,823	160,422
Other liabilities	414,752	371,439
Total liabilities	1,376,697	1,606,019
Commitments and contingencies		
Stockholders' equity:		
Common stock, $0.001 par value per share; 500,000,000 shares authorized; 104,289,617 and 104,034,731 shares issued and outstanding at March 31, 2017 and December 31, 2016, respectively	104	104
Additional paid-in capital	2,767,941	2,765,310
Accumulated earnings	2,471,971	2,462,842
Accumulated other comprehensive loss	(12,210)	(9,907)
Total stockholders' equity	5,227,806	5,218,349
Total liabilities and stockholders' equity	$ 6,604,503	$ 6,824,368

See accompanying notes to these condensed consolidated financial statements.

FIRST SOLAR, INC. AND SUBSIDIARIES

CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)
(Unaudited)

	Three Months Ended March 31,	
	2017	**2016**
Cash flows from operating activities:		
Net income	$ 9,129	$ 195,636
Adjustments to reconcile net income to cash provided by operating activities:		
Depreciation, amortization and accretion	32,968	58,375
Impairments and net losses on disposal of long-lived assets	15,011	1,163
Share-based compensation	7,051	11,478
Equity in earnings of unconsolidated affiliates, net of tax	552	(9,669)
Distributions received from equity method investments	5,507	—
Remeasurement of monetary assets and liabilities	(2,558)	(1,594)
Deferred income taxes	4,494	(1,829)
Gain on sales of marketable securities and restricted investments	(46)	(37,804)
Other, net	30	8,259
Changes in operating assets and liabilities:		
Accounts receivable, trade, unbilled and retainage	252,244	96,306
Prepaid expenses and other current assets	34,441	(27,691)
Inventories and balance of systems parts	(38,131)	(79,541)
Project assets	506,078	(140,136)
Other assets	(6,985)	(12,096)
Income tax receivable and payable	(2,308)	16,685
Accounts payable	(3,013)	(59,853)
Accrued expenses and other liabilities	(323,694)	63,165
Accrued solar module collection and recycling liability	2,374	3,364
Net cash provided by operating activities	493,144	84,218
Cash flows from investing activities:		
Purchases of property, plant and equipment	(112,993)	(51,754)
Purchases of marketable securities and restricted investments	(359,283)	(268,963)
Proceeds from sales and maturities of marketable securities and restricted investments	177,678	179,300
Other investing activities	1,408	(3,657)
Net cash used in investing activities	(293,190)	(145,074)
Cash flows from financing activities		
Repayment of long-term debt	(22,048)	(15,424)
Proceeds from borrowings under long-term debt, net of discounts and issuance costs	94,670	16,619
Repayment of sale-leaseback financing	—	(1,616)
Payments of tax withholdings for restricted shares	(4,167)	(17,418)
Proceeds from discounting of commercial letters of credit	43,025	—
Contingent consideration payments and other financing activities	(9,316)	(111)
Net cash provided by (used in) financing activities	102,164	(17,950)
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(7,307)	6,423
Net increase (decrease) in cash, cash equivalents and restricted cash	294,811	(72,383)
Cash, cash equivalents and restricted cash, beginning of the period	1,415,690	1,207,116
Cash, cash equivalents and restricted cash, end of the period	$ 1,710,501	$ 1,134,733
Supplemental disclosure of noncash investing and financing activities:		
Equity interests obtained from the sale of project assets	$ —	$ (25,889)
Property, plant and equipment acquisitions funded by liabilities	$ 21,498	$ 14,406
Acquisitions currently or previously funded by liabilities and contingent consideration	$ 21,610	$ 24,813
Accrued interest capitalized to long-term debt	$ 13,589	$ —

See accompanying notes to these condensed consolidated financial statements.

FIRST SOLAR, INC. AND SUBSIDIARIES

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (Unaudited)

1. Basis of Presentation

The accompanying unaudited condensed consolidated financial statements of First Solar, Inc. and its subsidiaries have been prepared in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP") for interim financial information and pursuant to the instructions to Form 10-Q and Article 10 of Regulation S-X of the Securities and Exchange Commission (the "SEC"). Accordingly, these interim financial statements do not include all of the information and footnotes required by U.S. GAAP for annual financial statements. In the opinion of First Solar management, all adjustments (consisting only of normal recurring adjustments) considered necessary for a fair statement have been included. Operating results for the three months ended March 31, 2017 are not necessarily indicative of the results that may be expected for the year ending December 31, 2017 or for any other period. The condensed consolidated balance sheet at December 31, 2016 has been derived from the audited consolidated financial statements at that date, but does not include all of the information and footnotes required by U.S. GAAP for complete financial statements. These interim financial statements and notes should be read in conjunction with the audited financial statements and notes thereto for the year ended December 31, 2016 included in our Annual Report on Form 10-K, which has been filed with the SEC.

Certain prior year balances have been reclassified to conform to the current year presentation. Such reclassifications primarily relate to the adoptions of Accounting Standards Update ("ASU") 2016-18, ASU 2016-09, and ASU 2014-09 as further described in Note 3. "Recent Accounting Pronouncements" and Note 14. "Revenue from Contracts with Customers" to our condensed consolidated financial statements.

Unless expressly stated or the context otherwise requires, the terms "the Company," "we," "us," "our," and "First Solar" refer to First Solar, Inc. and its subsidiaries.

2. Summary of Significant Accounting Policies

Use of Estimates. The preparation of condensed consolidated financial statements in conformity with U.S. GAAP requires us to make estimates and assumptions that affect the amounts reported in our condensed consolidated financial statements and the accompanying notes. On an ongoing basis, we evaluate our estimates, including those related to inputs used to recognize revenue over time, accrued solar module collection and recycling, product warranties, performance guarantees, indemnifications, accounting for income taxes, long-lived asset impairments, and testing goodwill. Despite our intention to establish accurate estimates and reasonable assumptions, actual results could differ materially from these estimates and assumptions.

Accounts Receivable Trade and Allowance for Doubtful Accounts . We record trade accounts receivable for our unconditional rights to consideration arising from our performance under contracts with customers. The carrying value of such receivables, net of the allowance for doubtful accounts, represents their estimated net realizable value. We estimate our allowance for doubtful accounts for specific trade receivable balances based on historical collection trends, the age of outstanding trade receivables, existing economic conditions, and the financial security, if any, associated with the receivables. Past-due trade receivable balances are written off when our internal collection efforts have been unsuccessful. As a practical expedient, we do not adjust the promised amount of consideration for the effects of a significant financing component when we expect, at contract inception, that the period between our transfer of a promised product or service to a customer and when the customer pays for that product or service will be one year or less. We do not typically include extended payment terms in our contracts with customers.

Accounts Receivable, Unbilled . Accounts receivable, unbilled represents a contract asset for revenue that has been recognized in advance of billing the customer, which is common for long-term construction contracts. For example, we typically recognize revenue from contracts for the construction and sale of PV solar power systems over time using cost based input methods, which recognize revenue and gross profit as work is performed based on the relationship between actual costs incurred compared to the total estimated costs for the contract. Accordingly, revenue could be recognized in advance of billing the customer, resulting in an amount recorded to "Accounts receivable, unbilled and retainage." Once we have an unconditional right to consideration under a construction contract, we typically bill our customer accordingly and reclassify the "Accounts receivable, unbilled and retainage" to "Accounts receivable trade, net." Billing requirements vary by contract but are generally structured around the completion of certain construction milestones.

Retainage. Certain of our engineering, procurement, and construction ("EPC") contracts for PV solar power systems we build contain retainage provisions. Retainage represents a contract asset for the portion of the contract price earned by us for work performed, but held for payment by the customer as a form of security until we reach certain construction milestones. We consider whether collectibility of such retainage is reasonably assured in connection with our overall assessment of the collectibility of amounts due or that will become due under our EPC contracts. Retainage included within "Accounts receivable, unbilled and retainage" is expected to be billed and collected within the next 12 months. After we satisfy the EPC contract requirements and have an unconditional right to consideration, we typically bill for retainage and reclassify such amounts to "Accounts receivable trade, net."

Project Assets. Project assets primarily consist of costs related to solar power projects in various stages of development that are capitalized prior to the completion of the sale of the project, including projects that may have begun commercial operation under power purchase agreements ("PPAs") and are actively marketed and intended to be sold. These project related costs include costs for land, development, and construction of a PV solar power system. Development costs may include legal, consulting, permitting, transmission upgrade, interconnection, and other similar costs. We typically classify project assets as noncurrent due to the nature of solar power projects (long-lived assets) and the time required to complete all activities to develop, construct, and sell projects, which is typically longer than 12 months. Once we enter into a definitive sales agreement, we classify such project assets as current until the sale is completed and we have met all of the criteria to recognize the sale as revenue. Any income generated by a project while it remains within project assets is accounted for as a reduction to our basis in the project, which at the time of sale and meeting all revenue recognition criteria will be recorded within cost of sales. If a project is completed and begins commercial operation prior to the closing of a sales arrangement, the completed project will remain in project assets until placed in service. We present all expenditures related to the development and construction of project assets, whether fully or partially owned, as a component of cash flows from operating activities.

We review project assets for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. We consider a project commercially viable or recoverable if it is anticipated to be sold for a profit once it is either fully developed or fully constructed. We consider a partially developed or partially constructed project commercially viable or recoverable if the anticipated selling price is higher than the carrying value of the related project assets. We examine a number of factors to determine if the project is expected to be recoverable, including whether there are any changes in environmental, ecological, permitting, market pricing, or regulatory conditions that may impact the project. Such changes could cause the costs of the project to increase or the selling price of the project to decrease. If a project is not considered recoverable, we impair the respective project assets and adjust the carrying value to the estimated fair value, with the resulting impairment recorded within "Selling, general and administrative" expense.

Deferred Revenue. When we receive consideration, or such consideration is unconditionally due, from a customer prior to transferring goods or services to the customer under the terms of a sales contract, we record deferred revenue, which represents a contract liability. We recognize deferred revenue as net sales after we have transferred control of the goods or services to the customer and all revenue recognition criteria are met.

Revenue Recognition – Module and Other Equipment Sales. We recognize revenue for module and other equipment sales (e.g., module plus arrangements) at a point in time following the transfer of control of such products to the customer, which typically occurs upon shipment or delivery depending on the terms of the underlying contracts. For module and other equipment sales contracts that contain multiple performance obligations, such as the shipment or delivery of solar modules and other balance of systems ("BoS") parts, we allocate the transaction price to each performance obligation identified in the contract based on relative standalone selling prices and recognize the related revenue as control of each individual product is transferred to the customer, in satisfaction of the corresponding performance obligations.

Revenue Recognition – Solar Power System Sales and/or Engineering, Procurement, and Construction Services . We generally recognize revenue for sales of solar power systems and/or EPC services over time as our performance creates or enhances an energy generation asset controlled by the customer. Furthermore, the sale of a solar power system, including those in which we may receive consideration of a noncontrolling interest, when combined with EPC services represents a single performance obligation for the development and construction of a single generation asset. For such sales arrangements, we recognize revenue using cost based input methods, which recognize revenue and gross profit as work is performed based on the relationship between actual costs incurred compared to the total estimated costs for the contract, after consideration of our customers' commitment to perform its obligations under the contract, which is typically measured through the receipt of cash deposits or other forms of financial security issued by creditworthy financial institutions or parent entities . For sales of solar power systems in which we obtain an interest in the project sold to the customer, we recognize all of the revenue for the consideration received, including the fair value of the noncontrolling interest we obtained, and defer any profit associated with the interest obtained through " Equity in earnings of unconsolidated affiliates, net of tax ."

In applying cost based input methods of revenue recognition, we use the actual costs incurred relative to the total estimated costs (including solar module costs) to determine our progress towards contract completion and to calculate the corresponding amount of revenue and gross profit to recognize. For any costs incurred that do not contribute to satisfying our performance obligations ("inefficient costs"), we exclude such costs from our input methods of revenue recognition as the amounts are not reflective of our transferring control of the system to the customer. Costs incurred towards contract completion may include costs associated with solar modules, direct materials, labor, subcontractors, and other indirect costs related to contract performance. We recognize solar module and direct material costs as incurred when such items have been installed in a system. Cost based input methods of revenue recognition require us to make estimates of net contract revenues and costs to complete our projects. In making such estimates, significant judgment is required to evaluate assumptions related to the amount of net contract revenues, including the impact of any performance incentives, liquidated damages, and other forms of variable consideration as well as any payments to customers, such as indemnifications accounted for pursuant to Accounting Standards Codification ("ASC") 460, *Guarantees* . Significant judgment is also required to evaluate assumptions related to the costs to complete our projects, including materials, labor, contingencies, and other system costs.

If estimated total costs on any contract, including any inefficient costs, are greater than the net contract revenues, we recognize the entire estimated loss in the period the loss becomes known. The cumulative effect of revisions to estimates related to net contract revenues or costs to complete contracts are recorded in the period in which the revisions to estimates are identified and the amounts can be reasonably estimated. The effect of the changes on future periods are recognized as if the revised estimates had been used since revenue was initially recognized under the contract. Such revisions could occur in any reporting period, and the effects may be material depending on the size of the contracts or the changes in estimates.

As part of our solar power system sales, we conduct performance testing of a system prior to substantial completion to confirm the system meets its operational and capacity expectations noted in the EPC agreement. In addition, we may provide an energy performance test during the first or second year of a system's operation to demonstrate that the actual energy generation for the applicable year meets or exceeds the modeled energy expectation, after certain adjustments. In certain instances, a bonus payment may be received at the end of the first year if the system performs above a specified level. Conversely, if there is an underperformance event with regards to these tests, we may incur liquidated damages as a percentage of the EPC contract price. Such performance guarantees represent a form of variable consideration and are recognized as adjustments to revenue when sufficient performance data becomes available and only to the extent that it is probable that a significant reversal of such revenue will not occur.

Revenue Recognition – Operations and Maintenance. We generally recognize revenue for standard, recurring operations and maintenance ("O&M") services over time as customers receive and consume the benefits of such services, which typically include 24/7 system monitoring, certain PPA and other agreement compliance, North American Electric Reliability Corporation (or "NERC") compliance, large generator interconnection agreement compliance, energy forecasting, performance engineering analysis, regular performance reporting, turn-key maintenance services including spare parts and corrective maintenance repair, warranty management, and environmental services. Other ancillary O&M services, such as equipment replacement, weed abatement, landscaping, or solar module cleaning, are recognized as revenue as the services are provided and billed to the customer. Costs of O&M services are expensed in the period in which they are incurred.

As part of our O&M service offerings, we typically offer an effective availability guarantee, which stipulates that a system will be available to generate a certain percentage of total possible energy during a specific period after adjusting for factors outside of our control as the service provider. If system availability exceeds a contractual threshold, we may receive a bonus payment, or if system availability falls below a separate threshold, we may incur liquidated damages for certain lost energy under the PPA. Such bonuses or liquidated damages represent a form of variable consideration and are estimated and recognized over time as customers receive and consume the benefits of the O&M services.

Revenue Recognition – Energy Generation. We typically recognize revenue for energy generated and sold by PV solar power systems under ASC 840, *Leases* , consistent with the classification of the associated PPAs. Accordingly, we recognize revenue each period based on the volume of energy delivered to the customer (i.e., the PPA offtaker). For energy generated and sold by PV solar power systems on an open contract basis, we recognize revenue at the point in time the energy is delivered to the grid.

Shipping and Handling Costs. We account for shipping and handling activities related to contracts with customers as costs to fulfill our promise to transfer the associated products. Accordingly, we record customer payments of shipping and handling costs as a component of net sales, and classify such costs as a component of cost of sales.

Taxes Collected from Customers and Remitted to Governmental Authorities. We exclude tax amounts assessed by governmental authorities that are both (i) imposed on and concurrent with a specific revenue-producing transaction and (ii) collected from customers from our measurement of transaction prices. Accordingly, such tax amounts are not included as a component of net sales or cost of sales.

See Note 2. "Summary of Significant Accounting Policies" to our consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2016 for a summary of our other significant accounting policies.

3. Recent Accounting Pronouncements

In January 2017, the Financial Accounting Standards Board ("FASB") issued ASU 2017-04, *Goodwill and Other (Topic 350) – Simplifying the Test for Goodwill Impairment.* ASU 2017-04 simplifies the subsequent measurement of goodwill by eliminating Step 2 of the goodwill impairment test. In computing the implied fair value of goodwill under Step 2, an entity had to perform procedures to determine the fair value at the impairment testing date of its assets and liabilities (including unrecognized assets and liabilities) following the procedure that would be required in determining the fair value of assets acquired and liabilities assumed in a business combination. Under ASU 2017-04, an entity should perform its goodwill impairment test by comparing the fair value of a reporting unit with its carrying amount and then recognize an impairment charge, as necessary, for the amount by which the carrying amount exceeds the reporting unit's fair value, not to exceed the total amount of goodwill allocated to that reporting unit. As a result of our adoption of ASU 2017-04 in the first quarter of 2017, we will eliminate Step 2 for future goodwill impairment tests.

In November 2016, the FASB issued ASU 2016-18, *Statement of Cash Flows (Topic 230) – Restricted Cash* . ASU 2016-18 requires that the statement of cash flows explain the change during the period in the total of cash, cash equivalents, and amounts generally described as restricted cash or restricted cash equivalents when reconciling the beginning-of-period and end-of-period total amounts shown on the statement of cash flows. As a result of the adoption of ASU 2016-18 in the fourth quarter of 2016, we began including amounts generally described as restricted cash and restricted cash equivalents with cash and cash equivalents when reconciling the beginning-of-period and end-of-period total amounts shown on the statement of cash flows. See the tables at the end of this note for the effects of the adoption of ASU 2016-18 on our condensed consolidated statement of cash flows for the three months ended March 31, 2016.

In October 2016, the FASB issued ASU 2016-16, *Income Taxes (Topic 230) – Intra-Entity Transfers of Assets Other Than Inventory* . ASU 2016-16 requires the recognition of income tax consequences of intra-entity transfers of assets, other than inventory, when the transfer occurs. Two common examples of assets included in the scope of ASU 2016-16 are intellectual property and long-lived assets. ASU 2016-16 is effective for fiscal years and interim periods within those years beginning after December 15, 2017, and early adoption is permitted in annual reporting periods for which financial statements (interim or annual) have not been issued. We are currently evaluating the impact ASU 2016-16 will have on our consolidated financial statements and associated disclosures.

In June 2016, the FASB issued ASU 2016-13, *Financial Instruments – Credit Losses (Topic 326),* to provide financial statement users with more useful information about expected credit losses. ASU 2016-13 also changes how entities measure credit losses on financial instruments and the timing of when such losses are recorded. ASU 2016-13 is effective for fiscal years and interim periods within those years beginning after December 15, 2019, and early adoption is permitted for periods beginning after December 15, 2018. We are currently evaluating the impact ASU 2016-13 will have on our consolidated financial statements and associated disclosures.

In March 2016, the FASB issued ASU 2016-09, *Compensation – Stock Compensation (Topic 718) – Improvements to Employee Share-Based Payment Accounting* , to simplify several aspects of the accounting for share-based payment transactions, including income tax consequences, accounting for forfeitures, classification of awards as either equity or liabilities, and classification on the statement of cash flows. Our adoption of ASU 2016-09 in the fourth quarter of 2016 resulted in the recognition of certain deferred tax assets for excess tax benefits that had previously not been recognized, as such benefits did not reduce our income taxes payable in prior periods, and the recognition of amounts for previously estimated forfeitures of share-based awards. As a result of the adoption, we also adjusted our condensed consolidated statement of cash flows to eliminate the reclassification of excess tax benefits to cash flows from financing activities and to present payments of tax withholdings on share-based awards as cash flows from financing activities. See the tables at the end of this note for the effects of the adoption of ASU 2016-09 on our condensed consolidated financial statements for the three months ended March 31, 2016.

In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842)* , to increase transparency and comparability among organizations by recognizing a right-of-use asset and a lease liability on the balance sheet for all leases with terms longer than 12 months. Leases will be classified as either operating or financing, with such classification affecting the pattern of expense recognition in the income statement. ASU 2016-02 is effective for fiscal years and interim periods within those years beginning after December 15, 2018, and early adoption is permitted. We are currently evaluating the impact ASU 2016-02 will have on our consolidated financial statements and associated disclosures.

In January 2016, the FASB issued ASU 2016-01, *Financial Instruments – Overall (Subtopic 825-10) – Recognition and Measurement of Financial Assets and Financial Liabilities.* ASU 2016-01 changes how entities measure certain equity investments and present changes in the fair value of financial liabilities measured under the fair value option that are attributable to their own credit. The guidance also changes certain disclosure requirements and other aspects of current U.S. GAAP. ASU 2016-01 is effective for fiscal years and interim periods within those years beginning after December 15, 2017, and early adoption is permitted for certain provisions of the guidance. We are currently evaluating the impact ASU 2016-01 will have on our consolidated financial statements and associated disclosures.

In May 2014, the FASB issued ASU 2014-09, *Revenue from Contracts with Customers (Topic 606)* , to clarify the principles of recognizing revenue and create common revenue recognition guidance between U.S. GAAP and International Financial Reporting Standards. Under ASU 2014-09, revenue is recognized when a customer obtains control of promised goods or services and is recognized at an amount that reflects the consideration expected to be received in exchange for such goods or services. In addition, ASU 2014-09 requires disclosure of the nature, amount, timing, and uncertainty of revenue and cash flows arising from contracts with customers.

We adopted ASU 2014-09 in the first quarter of 2017 using the full retrospective method. This adoption primarily affected our systems business sales arrangements previously accounted for under ASC 360-20, which had required us to evaluate whether such arrangements had any forms of continuing involvement that may have affected the revenue or profit recognition of the transactions, including arrangements with prohibited forms of continuing involvement. When such forms of continuing involvement were present, we reduced the potential profit on the applicable project sale by our maximum exposure to loss.

Our adoption of ASU 2014-09, which supersedes the real estate sales guidance under ASC 360-20, generally requires us to recognize revenue and profit from our systems business sales arrangements earlier and in a more linear fashion than our historical practice under ASC 360-20, including the estimation of certain profits that would otherwise have been deferred. Additionally, for systems business sales arrangements in which we obtain an interest in the project sold to the customer, we recognize all of the revenue for the consideration received, including the fair value of the noncontrolling interest we obtained , and defer any profit associated with the interest obtained through “ Equity in earnings of unconsolidated affiliates, net of tax .” Following the adoption of ASU 2014-09, the r evenue recognition for our other sales arrangements, including sales of solar modules and O&M services, remained materially consistent with our historical practice. See the tables at the end of this note for the effects of the adoption of ASU 2014-09 on our condensed consolidated financial statements as of December 31, 2016 and for the three months ended March 31, 2016. See Note 2. “Summary of Significant Accounting Policies” to our condensed consolidated financial statements for further discussion of the effects of the adoption of ASU 2014-09 on our significant accounting policies.

Adjustments to Previously Reported Financial Statements from the Adoption of Accounting Pronouncements

The following table presents the effect of the adoption of ASU 2014-09 on our condensed consolidated balance sheet as of December 31, 2016 (in thousands):

	December 31, 2016		
	As Reported	Adoption of ASU 2014-09	As Adjusted
Accounts receivable, unbilled and retainage	$ 205,530	$ 1,209	$ 206,739
Deferred project costs	701,105	(701,105)	—
Project assets, current	—	700,800	700,800
Prepaid expenses and other current assets	217,157	305	217,462
Total current assets	3,786,620	1,209	3,787,829
Project assets and deferred project costs	800,770	(800,770)	—
Project assets, noncurrent	—	762,148	762,148
Deferred tax assets, net	252,655	2,497	255,152
Investments in unconsolidated affiliates and joint ventures	242,361	(7,751)	234,610
Other assets	78,076	(178)	77,898
Total assets	6,867,213	(42,845)	6,824,368
Income taxes payable	5,288	7,274	12,562
Billings in excess of costs and estimated earnings	115,623	(115,623)	—
Payments and billings for deferred project costs	284,440	(284,440)	—
Deferred revenue	—	308,704	308,704
Other current liabilities	54,683	92,259	146,942
Total current liabilities	899,707	8,174	907,881
Other liabilities	428,120	(56,681)	371,439
Total liabilities	1,654,526	(48,507)	1,606,019
Additional paid-in capital	2,759,211	6,099	2,765,310
Accumulated earnings	2,463,279	(437)	2,462,842
Total stockholders' equity	5,212,687	5,662	5,218,349
Total liabilities and stockholders' equity	6,867,213	(42,845)	6,824,368

The following table presents the effect of the adoptions of ASU 2016-09 and ASU 2014-09 on our condensed consolidated statement of operations for the three months ended March 31, 2016 (in thousands, except per share amounts):

	Three Months Ended March 31, 2016			
	As Reported	Adoption of ASU 2016-09	Adoption of ASU 2014-09	As Adjusted
Net sales	$ 848,484	$ —	$ 27,584	$ 876,068
Cost of sales	585,539	—	12,918	598,457
Gross profit	262,945	—	14,666	277,611
Operating income	165,255	—	14,666	179,921
Income before taxes and equity in earnings of unconsolidated affiliates	199,332	—	14,666	213,998
Income tax expense	(33,764)	7,909	(2,176)	(28,031)
Equity in earnings of unconsolidated affiliates, net of tax	4,997	—	4,672	9,669
Net income	170,565	7,909	17,162	195,636
Comprehensive income	182,179	7,909	17,162	207,250
Basic net income per share	$ 1.67	$ 0.08	$ 0.17	$ 1.92
Diluted net income per share	$ 1.66	$ 0.08	$ 0.16	$ 1.90

The following table presents the effect of the adoptions of ASU 2016-18, ASU 2016-09, and ASU 2014-09 on our condensed consolidated statement of cash flows for the three months ended March 31, 2016 (in thousands):

	Three Months Ended March 31, 2016				
	As Reported	Adoption of ASU 2016-18	Adoption of ASU 2016-09	Adoption of ASU 2014-09	As Adjusted
Net income	$ 170,565	$ —	$ 7,909	$ 17,162	$ 195,636
Adjustments to reconcile net income to cash provided by (used in) operating activities:					
Equity in earnings of unconsolidated affiliates, net of tax	(4,997)	—	—	(4,672)	(9,669)
Remeasurement of monetary assets and liabilities	(4,184)	2,590	—	—	(1,594)
Excess tax benefits from share-based compensation arrangements	(13,716)	—	13,716	—	—
Other, net	873	—	—	7,386	8,259
Changes in operating assets and liabilities:					
Accounts receivable, trade, unbilled and retainage	117,343	—	—	(21,037)	96,306
Prepaid expenses and other current assets	(27,536)	—	—	(155)	(27,691)
Project assets	(176,232)	—	—	36,096	(140,136)
Other assets	(12,644)	—	—	548	(12,096)
Income tax receivable and payable	22,418	—	(7,909)	2,176	16,685
Accrued expenses and other liabilities	83,251	—	17,418	(37,504)	63,165
Net cash provided by operating activities	50,494	2,590	31,134	—	84,218
Change in restricted cash	34,427	(34,427)	—	—	—
Net cash used in investing activities	(110,647)	(34,427)	—	—	(145,074)
Excess tax benefits from share-based compensation arrangements	13,716	—	(13,716)	—	—
Payments of tax withholdings for restricted shares	—	—	(17,418)	—	(17,418)
Net cash provided by (used in) financing activities	13,184	—	(31,134)	—	(17,950)
Net decrease in cash, cash equivalents and restricted cash	(40,546)	(31,837)	—	—	(72,383)
Cash, cash equivalents and restricted cash, beginning of the period	1,126,826	80,290	—	—	1,207,116
Cash, cash equivalents and restricted cash, end of the period	1,086,280	48,453	—	—	1,134,733
Supplemental disclosure of noncash investing and financing activities:					
Equity interests obtained from the sale of project assets	(25,921)	—	—	32	(25,889)

4. Restructuring and Asset Impairments

Cadmium Telluride Module Manufacturing and Corporate Restructuring

In November 2016, our board of directors approved a set of initiatives intended to accelerate our transition to Series 6 module manufacturing and restructure our operations to reduce costs and better align the organization with our long term strategic plan. Accordingly, we expect to upgrade and replace our existing manufacturing fleet in 2017 and 2018 with Series 6 manufacturing equipment, thereby enabling the production of solar modules with a larger form factor, better product attributes, and a lower cost structure.

As part of these initiatives, we incurred net charges of $20.0 million during the three months ended March 31, 2017 , which included (i) $10.2 million of charges, primarily related to net losses on the disposition of previously impaired Series 4 manufacturing equipment, (ii) $6.2 million of severance benefits to terminated employees, and (iii) $3.6 million of net miscellaneous charges, primarily related to contract terminations, the write-off of operating supplies, and other Series 4 manufacturing exit costs. Substantially all amounts associated with these restructuring and asset impairment charges related to our components segment and were classified as “Restructuring and asset impairments” on our condensed consolidated statement of operations. We expect to incur up to $50 million of additional charges in 2017 as we continue the transition to Series 6 module manufacturing.

The following table summarizes our cadmium telluride (“CdTe”) module manufacturing and corporate restructuring activity recorded during the three months ended March 31, 2017 and the remaining liability balances at March 31, 2017 (in thousands):

	Asset Impairments	Severance	Other	Total
Ending liability balance at December 31, 2016	$ —	$ 7,865	$ 550	$ 8,415
Charges to income	10,208	6,248	3,574	20,030
Cash payments	—	(6,312)	(3,094)	(9,406)
Non-cash amounts	(10,208)	—	(148)	(10,356)
Ending liability balance at March 31, 2017	$ —	$ 7,801	$ 882	$ 8,683

5. Business Acquisitions

Enki Technology

In October 2016, we acquired 100% of the shares of Enki Technology, Inc. (“Enki”), a developer of advanced coating materials for the PV solar industry, for cash payments of $10.3 million , net of cash acquired of $0.3 million , and a promise to pay additional consideration of up to $7.0 million contingent on the achievement of certain production and module performance milestones. In connection with applying the acquisition method of accounting, $17.3 million of the purchase price consideration was assigned to an in process research and development (“IPR&D”) intangible asset to be amortized over its useful life upon successful completion of the underlying projects, $4.4 million was assigned to a deferred tax liability, and $4.4 million was assigned to goodwill. The acquired IPR&D includes patents, technical information and know-how, and other proprietary information associated with the development and production of anti-reflective coating material that we expect to use in the production of our solar modules. Such technology is expected to improve our module conversion efficiency and overall durability at a lower cost structure compared to our current production processes.

6. Cash and Marketable Securities

Cash and marketable securities consisted of the following at March 31, 2017 and December 31, 2016 (in thousands):

	March 31, 2017	December 31, 2016
Cash	$ 1,656,245	$ 1,347,155
Marketable securities:		
Foreign debt	218,291	296,819
Foreign government obligations	202,115	271,172
U.S. debt	64,036	—
Time deposits	305,000	40,000
Total marketable securities	789,442	607,991
Total cash and marketable securities	$ 2,445,687	$ 1,955,146

We classify our marketable securities as available-for-sale. Accordingly, we record them at fair value and account for the net unrealized gains and losses as part of " Accumulated other comprehensive loss " until realized. We record realized gains and losses on the sale of our marketable securities in " Other income, net " computed using the specific identification method. During the three months ended March 31, 2017 , we realized gains of less than $0.1 million on the sales of our marketable securities. During the three months ended March 31, 2016 , we did not realize any gains or losses on the sale of our marketable securities. See Note 10. "Fair Value Measurements" to our condensed consolidated financial statements for information about the fair value of our marketable securities.

As of March 31, 2017 , we identified four investments totaling $56.3 million that had been in a loss position for a period of time greater than 12 months with unrealized losses of $0.1 million . As of December 31, 2016 , we identified three investments totaling $51.2 million that had been in a loss position for a period of time greater than 12 months with unrealized losses of $0.1 million . The unrealized losses were primarily due to increases in interest rates relative to rates at the time of purchase. Based on the underlying credit quality of the investments, we do not intend to sell these securities prior to the recovery of our cost basis. Therefore, we did not consider these securities to be other-than-temporarily impaired. All of our available-for-sale marketable securities are subject to a periodic impairment review. We did not identify any of our marketable securities as other-than-temporarily impaired as of March 31, 2017 and December 31, 2016 .

The following tables summarize the unrealized gains and losses related to our available-for-sale marketable securities, by major security type, as of March 31, 2017 and December 31, 2016 (in thousands):

	As of March 31, 2017			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
Foreign debt	$ 219,370	$ —	$ 1,079	$ 218,291
Foreign government obligations	203,132	—	1,017	202,115
U.S. debt	64,122	—	86	64,036
Time deposits	305,000	—	—	305,000
Total	$ 791,624	$ —	$ 2,182	$ 789,442

	As of December 31, 2016			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
Foreign debt	$ 298,085	$ 2	$ 1,268	$ 296,819
Foreign government obligations	272,357	—	1,185	271,172
Time deposits	40,000	—	—	40,000
Total	$ 610,442	$ 2	$ 2,453	$ 607,991

The contractual maturities of our marketable securities as of March 31, 2017 and December 31, 2016 were as follows (in thousands):

	As of March 31, 2017			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
One year or less	$ 584,388	$ —	$ 499	$ 583,889
One year to two years	103,810	—	387	103,423
Two years to three years	103,426	—	1,296	102,130
Total	$ 791,624	$ —	$ 2,182	$ 789,442

	As of December 31, 2016			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
One year or less	$ 283,247	$ —	$ 429	$ 282,818
One year to two years	164,797	2	414	164,385
Two years to three years	162,398	—	1,610	160,788
Total	$ 610,442	$ 2	$ 2,453	$ 607,991

The net unrealized losses of $2.2 million and $2.5 million on our marketable securities as of March 31, 2017 and December 31, 2016 , respectively, were primarily the result of changes in interest rates relative to rates at the time of purchase. Our investment policy requires marketable securities to be highly rated and limits the security types, issuer concentration, and duration to maturity of our marketable securities portfolio.

The following tables show gross unrealized losses and estimated fair values for those marketable securities that were in an unrealized loss position as of March 31, 2017 and December 31, 2016 , aggregated by major security type and the length of time the marketable securities have been in a continuous loss position (in thousands):

	As of March 31, 2017					
	In Loss Position for Less Than 12 Months		In Loss Position for 12 Months or Greater		Total	
	Estimated Fair Value	Gross Unrealized Losses	Estimated Fair Value	Gross Unrealized Losses	Estimated Fair Value	Gross Unrealized Losses
Foreign debt	$ 168,561	$ 986	$ 51,307	$ 93	$ 219,868	$ 1,079
Foreign government obligations	$ 197,746	$ 992	$ 4,977	$ 25	$ 202,723	$ 1,017
U.S. debt	$ 64,560	$ 86	$ —	$ —	$ 64,560	$ 86
Total	$ 430,867	$ 2,064	$ 56,284	$ 118	$ 487,151	$ 2,182

	As of December 31, 2016					
	In Loss Position for Less Than 12 Months		In Loss Position for 12 Months or Greater		Total	
	Estimated Fair Value	Gross Unrealized Losses	Estimated Fair Value	Gross Unrealized Losses	Estimated Fair Value	Gross Unrealized Losses
Foreign debt	$ 234,332	$ 1,123	$ 51,236	$ 145	$ 285,568	$ 1,268
Foreign government obligations	$ 272,503	$ 1,185	$ —	$ —	$ 272,503	$ 1,185
Total	$ 506,835	$ 2,308	$ 51,236	$ 145	$ 558,071	$ 2,453

7. Restricted Cash and Investments

Restricted cash and investments consisted of the following at March 31, 2017 and December 31, 2016 (in thousands):

	March 31, 2017	December 31, 2016
Restricted cash	$ 15,537	$ 31,381
Restricted investments	339,700	339,926
Total restricted cash and investments (1)	$ 355,237	$ 371,307

(1) There was an additional $38.7 million and $37.2 million of restricted cash included within " Prepaid expenses and other current assets " at March 31, 2017 and December 31, 2016 , respectively.

At March 31, 2017 and December 31, 2016 , our restricted cash consisted of deposits held by various banks to secure certain of our letters of credit and other deposits designated for the construction or operation of systems projects as well as the payment of amounts related to project construction credit facilities. Restricted cash for our letters of credit is classified as current or noncurrent based on the maturity date of the corresponding letter of credit. See Note 13. "Commitments and Contingencies" to our condensed consolidated financial statements for further discussion relating to our letters of credit. Restricted cash for project construction, operation, and financing is classified as current or noncurrent based on the projected use of the restricted funds.

At March 31, 2017 and December 31, 2016 , our restricted investments consisted of long-term marketable securities that were held in custodial accounts to fund the estimated future costs of collecting and recycling modules covered under our solar module collection and recycling program. We classify our restricted investments as available-for-sale. Accordingly, we record them at fair value and account for the net unrealized gains and losses as a part of " Accumulated other comprehensive loss " until realized. We record realized gains and losses on the sale of our restricted investments in " Other income, net " computed using the specific identification method. During the three months ended March 31, 2017 , we did not realize any gains or losses on the sale of restricted investments. During the three months ended March 31, 2016 , we realized gains of $37.8 million on the sales of certain restricted investments as part of an effort to align the currencies of the investments with those of the corresponding collection and recycling liabilities. Restricted investments are classified as noncurrent as the underlying accrued solar module collection and recycling liability is also noncurrent in nature. See Note 10. "Fair Value Measurements" to our condensed consolidated financial statements for information about the fair value of our restricted investments.

As necessary, we fund any incremental amounts for our estimated collection and recycling obligations within 90 days of the end of each year. We determine the funding requirement, if any, based on estimated costs of collecting and recycling covered modules, estimated rates of return on our restricted investments, and an estimated solar module life of 25 years less amounts already funded in prior years. During the three months ended March 31, 2017 , no incremental funding was required for covered modules sales in 2016. To ensure that these funds will be available in the future regardless of any potential adverse changes in our financial condition (even in the case of our own insolvency), we have established a trust under which estimated funds are put into custodial accounts with an established and reputable bank, for which First Solar, Inc., First Solar Malaysia Sdn. Bhd., and First Solar Manufacturing GmbH are grantors. Only the trustee can distribute funds from the custodial accounts, and these funds cannot be accessed for any purpose other than to cover qualified costs of module collection and recycling, either by us or a third party performing the required collection and recycling services. Investments in these custodial accounts must meet certain investment quality criteria comparable to highly rated government or agency bonds. We closely monitor our exposure to European markets and maintain holdings primarily consisting of German and French sovereign debt securities that are not currently at risk of default.

The following tables summarize the unrealized gains and losses related to our restricted investments, by major security type, as of March 31, 2017 and December 31, 2016 (in thousands):

	As of March 31, 2017			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
Foreign government obligations	$ 110,608	$ 56,739	$ —	$ 167,347
U.S. government obligations	170,597	10,695	8,939	172,353
Total	$ 281,205	$ 67,434	$ 8,939	$ 339,700

	As of December 31, 2016			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
Foreign government obligations	$ 107,604	$ 62,350	$ —	$ 169,954
U.S. government obligations	169,294	10,468	9,790	169,972
Total	$ 276,898	$ 72,818	$ 9,790	$ 339,926

As of March 31, 2017 , the contractual maturities of our restricted investments were between 13 years and 20 years . As of December 31, 2016 , the contractual maturities of our restricted investments were between 11 years and 20 years .

8. Consolidated Balance Sheet Details

Accounts receivable trade, net

Accounts receivable trade, net consisted of the following at March 31, 2017 and December 31, 2016 (in thousands):

	March 31, 2017	December 31, 2016
Accounts receivable trade, gross	$ 151,206	$ 266,687
Allowance for doubtful accounts	(20)	—
Accounts receivable trade, net	$ 151,186	$ 266,687

At March 31, 2017 and December 31, 2016 , $20.1 million and $12.2 million , respectively, of our accounts receivable trade, net were secured by letters of credit, bank guarantees, or other forms of financial security issued by creditworthy financial institutions.

Accounts receivable, unbilled and retainage

Accounts receivable, unbilled and retainage consisted of the following at March 31, 2017 and December 31, 2016 (in thousands):

	March 31, 2017	December 31, 2016
Accounts receivable, unbilled	$ 64,995	$ 200,474
Retainage	5,541	6,265
Accounts receivable, unbilled and retainage	$ 70,536	$ 206,739

Inventories

Inventories consisted of the following at March 31, 2017 and December 31, 2016 (in thousands):

	March 31, 2017	December 31, 2016
Raw materials	$ 140,726	$ 148,222
Work in process	10,505	13,204
Finished goods	381,085	302,305
Inventories	$ 532,316	$ 463,731
Inventories – current	$ 432,602	$ 363,219
Inventories – noncurrent (1)	$ 99,714	$ 100,512

(1) As needed, we may purchase a critical raw material that is used in our core production process in quantities that exceed anticipated consumption within our normal operating cycle (which is 12 months). We classify such raw materials that we do not expect to consume within our normal operating cycle as noncurrent.

Prepaid expenses and other current assets

Prepaid expenses and other current assets consisted of the following at March 31, 2017 and December 31, 2016 (in thousands):

	March 31, 2017	December 31, 2016
Prepaid expenses	$ 42,243	$ 42,007
Prepaid income taxes	31,345	35,336
Restricted cash	38,719	37,154
Value added tax receivables	7,980	22,308
Derivative instruments	1,183	6,078
Other current assets	55,888	74,579
Prepaid expenses and other current assets	$ 177,358	$ 217,462

Property, plant and equipment, net

Property, plant and equipment, net consisted of the following at March 31, 2017 and December 31, 2016 (in thousands):

	March 31, 2017	December 31, 2016
Land	$ 7,882	$ 7,839
Buildings and improvements	378,757	378,981
Machinery and equipment	1,298,439	1,444,442
Office equipment and furniture	150,178	147,833
Leasehold improvements	49,631	53,552
Construction in progress	179,231	93,164
Stored assets (1)	16,059	17,995
Property, plant and equipment, gross	2,080,177	2,143,806
Accumulated depreciation	(1,388,410)	(1,514,664)
Property, plant and equipment, net	$ 691,767	$ 629,142

(1) Consist of certain machinery and equipment ("stored assets") that were originally intended for use in previously planned manufacturing capacity expansions. As further described in Note 4. "Restructuring and Asset Impairments" to our condensed consolidated financial statements, we recently introduced our next generation Series 6 module technology, which is expected to enable the production of modules with a larger form factor, better product attributes, and a lower cost structure. The majority of the remaining stored assets are expected to be repurposed for Series 6 manufacturing as we transition our production lines to such module technology through 2018. As the remaining stored assets are neither in the condition nor location to produce modules as intended, we will not begin depreciation until such assets are placed in service. We evaluate our property, plant and equipment, including our stored assets, for impairment under a held and used impairment model whenever events or changes in business circumstances arise, including consideration of technological obsolescence, that may indicate that the carrying amount of such assets may not be recoverable.

Depreciation of property, plant and equipment was $26.9 million and $54.6 million for the three months ended March 31, 2017 and 2016 , respectively.

PV solar power systems, net

PV solar power systems, net consisted of the following at March 31, 2017 and December 31, 2016 (in thousands):

	March 31, 2017	December 31, 2016
PV solar power systems, gross	$ 473,143	$ 464,581
Accumulated depreciation	(21,069)	(15,980)
PV solar power systems, net	$ 452,074	$ 448,601

Depreciation of PV solar power systems was $5.1 million and $1.2 million for the three months ended March 31, 2017 and 2016 , respectively.

Capitalized interest

The cost of constructing facilities, equipment, and project assets includes interest costs incurred during the assets' construction period. The components of interest expense and capitalized interest were as follows during the three months ended March 31, 2017 and 2016 (in thousands):

	Three Months Ended March 31,	
	2017	2016
Interest cost incurred	$ (9,270)	$ (5,894)
Interest cost capitalized – property, plant and equipment	—	236
Interest cost capitalized – project assets	101	1,016
Interest expense, net	$ (9,169)	$ (4,642)

Project assets

Project assets consisted of the following at March 31, 2017 and December 31, 2016 (in thousands):

	March 31, 2017	December 31, 2016
Project assets – development costs, including project acquisition and land costs	$ 377,787	$ 444,264
Project assets – construction costs	582,302	1,018,684
Total project assets	960,089	1,462,948
Project assets – current	—	700,800
Project assets – noncurrent	960,089	762,148

Other assets

Other assets consisted of the following at March 31, 2017 and December 31, 2016 (in thousands):

	March 31, 2017	December 31, 2016
Notes receivable (1)	$ 7,514	$ 7,385
Income taxes receivable	4,106	4,230
Deferred rent	27,001	27,160
Other	46,483	39,123
Other assets	$ 85,104	$ 77,898

(1) In April 2009 , we entered into a credit facility agreement with a solar power project entity of one of our customers for an available amount of €17.5 million to provide financing for a PV solar power system. The credit facility replaced a bridge loan that we had made to this entity. The credit facility bears interest at 8.0% per annum payable quarterly with the full amount due in December 2026. As of March 31, 2017 and December 31, 2016 , the balance outstanding on the credit facility was €7.0 million ($7.5 million and $7.4 million , respectively).

Goodwill

Goodwill, summarized by relevant reporting unit, consisted of the following as of March 31, 2017 and December 31, 2016 (in thousands):

	December 31, 2016	Acquisitions (Impairments)	March 31, 2017
Components	$ 407,827	$ —	$ 407,827
Accumulated impairment losses	(393,365)	—	(393,365)
Total	$ 14,462	$ —	$ 14,462

Goodwill represents the excess of the purchase price of acquired businesses over the estimated fair value assigned to the individual assets acquired and liabilities assumed. We do not amortize goodwill, but instead are required to test goodwill for impairment at least annually. If necessary, we would record any impairment in accordance with ASC 350, *Intangibles – Goodwill and Other*. We perform impairment tests between scheduled annual tests in the fourth quarter if facts and circumstances indicate that it is more likely than not that the fair value of a reporting unit that has goodwill is less than its carrying value.

Other intangibles, net

Other intangibles, net consisted of developed technologies from prior business acquisitions, certain PPAs acquired after the associated PV solar power systems were placed in service, our internally-generated intangible assets, substantially all of which were patents on technologies related to our products and production processes, and IPR&D related to our Enki acquisition as described in Note 5. “Business Acquisitions” to our condensed consolidated financial statements. We record an asset for patents, after the patent has been issued, based on the legal, filing, and other costs incurred to secure them. We amortize intangible assets on a straight-line basis over their estimated useful lives once the intangible assets meet the criteria to be amortized.

The following tables summarize our intangible assets at March 31, 2017 and December 31, 2016 (in thousands):

	March 31, 2017			
	Gross Amount	Accumulated Amortization	Accumulated Impairments	Net Amount
Developed technology	$ 76,959	$ (18,612)	$ —	$ 58,347
Power purchase agreements	6,486	(81)	—	6,405
Patents	6,538	(2,643)	—	3,895
In-process research and development	17,255	—	—	17,255
Total	$ 107,238	$ (21,336)	$ —	$ 85,902

	December 31, 2016			
	Gross Amount	Accumulated Amortization	Accumulated Impairments	Net Amount
Developed technology	$ 114,612	$ (18,208)	$ (36,215)	$ 60,189
Power purchase agreements	6,486	—	—	6,486
Patents	6,538	(2,498)	—	4,040
In-process research and development	17,255	—	—	17,255
Total	$ 144,891	$ (20,706)	$ (36,215)	$ 87,970

Amortization expense for our intangible assets was $2.1 million and $3.0 million for the three months ended March 31, 2017 and 2016 , respectively.

Accrued expenses

Accrued expenses consisted of the following at March 31, 2017 and December 31, 2016 (in thousands):

	March 31, 2017	December 31, 2016
Accrued compensation and benefits	$ 29,594	$ 47,877
Accrued property, plant and equipment	10,943	14,828
Accrued inventory	5,308	13,085
Accrued project assets	42,370	71,164
Product warranty liability (1)	40,432	40,079
Other	56,690	75,944
Accrued expenses	$ 185,337	$ 262,977

(1) See Note 13. “Commitments and Contingencies” to our condensed consolidated financial statements for discussion of our “Product warranty liability.”

Other current liabilities

Other current liabilities consisted of the following at March 31, 2017 and December 31, 2016 (in thousands):

	March 31, 2017	December 31, 2016
Indemnification liabilities	100,000	100,000
Derivative instruments	21,572	6,642
Contingent consideration (1)	11,729	19,620
Financing liability (2)	6,803	5,219
Other	16,859	15,461
Other current liabilities	$ 156,963	$ 146,942

(1) See Note 13. “Commitments and Contingencies” to our condensed consolidated financial statements for discussion of our “Contingent consideration” arrangements.

(2) See Note 11. “Investments in Unconsolidated Affiliates and Joint Ventures” to our condensed consolidated financial statements for discussion of the financing liabilities associated with our leaseback of the Maryland Solar project.

Other liabilities

Other liabilities consisted of the following at March 31, 2017 and December 31, 2016 (in thousands):

	March 31, 2017	December 31, 2016
Product warranty liability (1)	$ 212,990	$ 212,329
Other taxes payable (2)	25,378	24,099
Contingent consideration (1)	9,881	10,472
Financing liability (3)	32,167	33,314
Commercial letter of credit liability (4)	69,913	26,579
Other	64,423	64,646
Other liabilities	$ 414,752	$ 371,439

(1) See Note 13. “Commitments and Contingencies” to our condensed consolidated financial statements for discussion of our “Product warranty liability” and “Contingent consideration” arrangements.

(2) See Note 16. “Income Taxes” to our condensed consolidated financial statements for discussion on our liabilities associated with uncertain tax positions.

(3) See Note 11. “Investments in Unconsolidated Affiliates and Joint Ventures” to our condensed consolidated financial statements for discussion of the financing liabilities associated with our leaseback of the Maryland Solar project.

(4) See Note 13. “Commitments and Contingencies” to our condensed consolidated financial statements for discussion of our “Commercial letter of credit liability.”

9. Derivative Financial Instruments

As a global company, we are exposed in the normal course of business to interest rate and foreign currency risks that could affect our financial position, results of operations, and cash flows. We use derivative instruments to hedge against these risks and only hold such instruments for hedging purposes, not for speculative or trading purposes.

Depending on the terms of the specific derivative instruments and market conditions, some of our derivative instruments may be assets and others liabilities at any particular balance sheet date. We report all of our derivative instruments at fair value and account for changes in the fair value of derivative instruments within “ Accumulated other comprehensive loss ” if the derivative instruments qualify for hedge accounting. For those derivative instruments that do not qualify for hedge accounting (“economic hedges”), we record the changes in fair value directly to earnings. See Note 10. “Fair Value Measurements” to our condensed consolidated financial statements for information about the techniques we use to measure the fair value of our derivative instruments.

The following tables present the fair values of derivative instruments included in our condensed consolidated balance sheets as of March 31, 2017 and December 31, 2016 (in thousands):

	March 31, 2017		
	Prepaid Expenses and Other Current Assets	Other Current Liabilities	Other Liabilities
Derivatives designated as hedging instruments:			
Foreign exchange forward contracts	$ —	$ 742	$ 757
Total derivatives designated as hedging instruments	$ —	$ 742	$ 757
Derivatives not designated as hedging instruments:			
Foreign exchange forward contracts	$ 1,183	$ 20,830	$ —
Interest rate swap contracts	—	—	4,676
Total derivatives not designated as hedging instruments	$ 1,183	$ 20,830	$ 4,676
Total derivative instruments	$ 1,183	$ 21,572	$ 5,433

	December 31, 2016		
	Prepaid Expenses and Other Current Assets	Other Current Liabilities	Other Liabilities
Derivatives designated as hedging instruments:			
Foreign exchange forward contracts	$ 2,072	$ 387	$ 444
Total derivatives designated as hedging instruments	$ 2,072	$ 387	$ 444
Derivatives not designated as hedging instruments:			
Foreign exchange forward contracts	$ 4,006	$ 6,255	$ —
Total derivatives not designated as hedging instruments	$ 4,006	$ 6,255	$ —
Total derivative instruments	$ 6,078	$ 6,642	$ 444

The impact of offsetting balances associated with derivative instruments designated as hedging instruments is shown below (in thousands):

	March 31, 2017					
				Gross Amounts Not Offset in Consolidated Balance Sheet		
	Gross Asset (Liability)	Gross Offset in Consolidated Balance Sheet	Net Amount Recognized in Financial Statements	Financial Instruments	Cash Collateral Pledged	Net Amount
Foreign exchange forward contracts	$ (1,499)	—	(1,499)	—	—	$ (1,499)

	December 31, 2016					
				Gross Amounts Not Offset in Consolidated Balance Sheet		
	Gross Asset (Liability)	Gross Offset in Consolidated Balance Sheet	Net Amount Recognized in Financial Statements	Financial Instruments	Cash Collateral Pledged	Net Amount
Foreign exchange forward contracts	$ 1,241	—	1,241	—	—	$ 1,241

The following tables present the effective amounts related to derivative instruments designated as cash flow hedges affecting accumulated other comprehensive income or loss and our condensed consolidated statements of operations for the three months ended March 31, 2017 and 2016 (in thousands):

	Foreign Exchange Forward Contracts	Interest Rate Swap Contract	Cross Currency Swap Contract	Total
Balance in accumulated other comprehensive (loss) income at December 31, 2016	$ 2,556	$ —	$ —	$ 2,556
Amounts recognized in other comprehensive (loss) income	(2,967)	—	—	(2,967)
Balance in accumulated other comprehensive (loss) income at March 31, 2017	$ (411)	$ —	$ —	$ (411)
Balance in accumulated other comprehensive (loss) income at December 31, 2015	$ 162	$ (16)	$ (2,017)	$ (1,871)
Amounts recognized in other comprehensive income (loss)	(2)	(2)	7,163	7,159
Amounts reclassified to earnings impacting:				
Foreign currency gain (loss), net	—	—	(7,162)	(7,162)
Interest expense, net	—	18	80	98
Balance in accumulated other comprehensive (loss) income at March 31, 2016	$ 160	$ —	$ (1,936)	$ (1,776)

We recorded no amounts related to ineffective portions of our derivative instruments designated as cash flow hedges during the three months ended March 31, 2017 and 2016 . We recognized unrealized losses of $0.1 million and $0.2 million related to amounts excluded from effectiveness testing for our foreign exchange forward contracts designated as cash flow hedges within " Other income, net " during the three months ended March 31, 2017 and 2016 .

The following table presents amounts related to derivative instruments not designated as hedges affecting our condensed consolidated statements of operations for the three months ended March 31, 2017 and 2016 (in thousands):

		Three Months Ended March 31,	
	Income Statement Line Items	2017	2016
Foreign exchange forward contracts	Foreign currency gain (loss), net	$ (20,159)	$ (17,381)
Interest rate swap contracts	Interest expense, net	(4,676)	—

Interest Rate Risk

We use cross-currency swap and interest rate swap contracts to mitigate our exposure to interest rate fluctuations associated with certain of our debt instruments. We do not use such swap contracts for speculative or trading purposes.

In March 2017, Manildra Finco Pty Ltd, our indirect wholly-owned subsidiary and project financing company, entered into various interest rate swap contracts to hedge a portion of the floating rate construction loan facility under the associated project's Manildra Credit Facility (as defined in Note 12. "Debt" to our condensed consolidated financial statements). Such swaps had an initial aggregate notional value of AUD 12.8 million and entitled the project to receive a one-month or three-month floating Bank Bill Swap or "BSBW" interest rate while requiring the project to pay a fixed rate of 3.13% . The aggregate notional amount of the interest rate swap contracts proportionately adjusts with the scheduled draws and principal payments on the underlying hedged debt. As of March 31, 2017, the aggregate notional value of the interest rate swap contracts was AUD 12.8 million ($9.8 million). These derivative instruments do not qualify for accounting as cash flow hedges in accordance with ASC 815 due to our expectation to sell the associated project before the maturity of its project specific debt financing and corresponding swap contracts. Accordingly, the changes in the fair value of the swap contracts are recorded directly to " Interest expense, net ."

In January 2017, FS Japan Project 12 GK, our indirect wholly-owned subsidiary and project company, entered into an interest rate swap contract to hedge a portion of the floating rate senior loan facility under the project's Ishikawa Credit Agreement (as defined in Note 12. "Debt" to our condensed consolidated financial statements). Such swap had an initial notional value of ¥5.7 billion and entitled the project to receive a six-month floating Tokyo Interbank Offered Rate ("TIBOR") interest rate while requiring the project to pay a fixed rate of 1.482% . The notional amount of the interest rate swap contract proportionately adjusts with the scheduled draws and principal payments on the underlying hedged debt. As of March 31, 2017, the notional value of the interest rate swap contract was ¥5.7 billion ($50.9 million). This derivative instrument does not qualify for accounting as a cash flow hedge in accordance with ASC 815 due to our expectation to sell the associated project before the maturity of its project specific debt financing and corresponding swap contract. Accordingly, the changes in the fair value of the swap contract are recorded directly to " Interest expense, net ."

Foreign Currency Exchange Risk

Cash Flow Exposure

We expect certain of our subsidiaries to have future cash flows that will be denominated in currencies other than the subsidiaries' functional currencies. Changes in the exchange rates between the functional currencies of our subsidiaries and the other currencies in which they transact will cause fluctuations in the cash flows we expect to receive or pay when these cash flows are realized or settled. Accordingly, we enter into foreign exchange forward contracts to hedge a portion of these forecasted cash flows. As of March 31, 2017 and December 31, 2016 , these foreign exchange forward contracts hedged our forecasted cash flows for 18 months and 21 months , respectively. These foreign exchange forward contracts qualify for accounting as cash flow hedges in accordance with ASC 815, and we designated them as such. We initially report the effective portion of a derivative ' s unrealized gain or loss in " Accumulated other comprehensive loss " and subsequently reclassify amounts into earnings when the hedged transaction occurs and impacts earnings. We determined that these derivative financial instruments were highly effective as cash flow hedges as of March 31, 2017 and December 31, 2016 .

As of March 31, 2017 and December 31, 2016 , the notional values associated with our foreign exchange forward contracts qualifying as cash flow hedges were as follows (notional amounts and U.S. dollar equivalents in millions):

	March 31, 2017	
Currency	**Notional Amount**	**USD Equivalent**
Indian rupee	INR 860.0	$13.2

	December 31, 2016	
Currency	**Notional Amount**	**USD Equivalent**
Indian rupee	INR 860.0	$12.7
Australian dollar	AUD 55.3	$40.0

In the following 12 months, we expect to reclassify to earnings $0.3 million of net unrealized loss related to these forward contracts that are included in " Accumulated other comprehensive loss " at March 31, 2017 as we realize the earnings effect of the related forecasted transactions. The amount we ultimately record to earnings will depend on the actual exchange rates when we realize the related forecasted transactions.

Transaction Exposure and Economic Hedging

Many of our subsidiaries have assets and liabilities (primarily cash, receivables, marketable securities, payables, debt, and solar module collection and recycling liabilities) that are denominated in currencies other than the subsidiaries' functional currencies. Changes in the exchange rates between the functional currencies of our subsidiaries and the other currencies in which these assets and liabilities are denominated will create fluctuations in our reported condensed consolidated statements of operations and cash flows. We may enter into foreign exchange forward contracts or other financial instruments to economically hedge assets and liabilities against the effects of currency exchange rate fluctuations. The gains and losses on such foreign exchange forward contracts will economically offset all or part of the transaction gains and losses that we recognize in earnings on the related foreign currency denominated assets and liabilities.

We enter into foreign exchange forward contracts to economically hedge balance sheet and other exposures related to transactions between certain of our subsidiaries and transactions with third parties. Such contracts are considered economic hedges and do not qualify for hedge accounting. Accordingly, we recognize gains or losses from the fluctuations in foreign exchange rates and the fair value of these derivative contracts in " Foreign currency gain (loss), net " on our condensed consolidated statements of operations. As of March 31, 2017 and December 31, 2016 , the total net unrealized loss on our economic hedge foreign exchange forward contracts was $19.6 million and $2.2 million , respectively. These contracts mature at various dates within the next 1.8 years .

As of March 31, 2017 and December 31, 2016 , the notional values of our foreign exchange forward contracts that do not qualify for hedge accounting were as follows (notional amounts and U.S. dollar equivalents in millions):

	March 31, 2017		
Transaction	**Currency**	**Notional Amount**	**USD Equivalent**
Purchase	Euro	€103.8	$111.4
Sell	Euro	€138.8	$149.0
Purchase	Australian dollar	AUD 13.1	$10.0
Sell	Australian dollar	AUD 20.1	$15.4
Purchase	Malaysian ringgit	MYR 47.7	$10.8
Sell	Malaysian ringgit	MYR 184.6	$41.8
Sell	Canadian dollar	CAD 17.7	$13.3
Purchase	Chilean peso	CLP 11,113.1	$16.8
Sell	Chilean peso	CLP 20,305.7	$30.7
Purchase	Chinese yuan	CNY 32.3	$4.7
Sell	Japanese yen	¥20,307.9	$182.5
Sell	Singapore dollar	SGD 3.1	$2.2
Sell	Indian rupee	INR 13,565.1	$209.0
Sell	South African rand	ZAR 49.4	$3.8

	December 31, 2016		
Transaction	**Currency**	**Notional Amount**	**USD Equivalent**
Purchase	Euro	€64.5	$68.0
Sell	Euro	€103.6	$109.3
Purchase	Australian dollar	AUD 1.2	$0.9
Sell	Australian dollar	AUD 19.3	$14.0
Sell	Malaysian ringgit	MYR 24.5	$5.5
Sell	Canadian dollar	CAD 17.7	$13.2
Sell	Chilean peso	CLP 13,611.6	$20.3
Purchase	Chinese yuan	CNY 24.3	$3.5
Purchase	Japanese yen	¥97.3	$0.8
Sell	Japanese yen	¥15,610.4	$133.7
Sell	British pound	£0.6	$0.7
Sell	Indian rupee	INR 12,753.2	$187.7
Sell	South African rand	ZAR 51.2	$3.7

10. Fair Value Measurements

The following is a description of the valuation techniques that we use to measure the fair value of assets and liabilities that we measure and report at fair value on a recurring basis:

- *Marketable Securities and Restricted Investments.* At March 31, 2017 , our marketable securities consisted of foreign debt, foreign government obligations, U.S. debt, and time deposits, and our restricted investments consisted of foreign and U.S. government obligations. At December 31, 2016 , our marketable securities consisted of foreign debt, foreign government obligations, and time deposits, and our restricted investments consisted of foreign and U.S. government obligations. We value our marketable securities and restricted investments using observable inputs that reflect quoted prices for securities with identical characteristics or quoted prices for securities with similar characteristics and other observable inputs (such as interest rates that are observable at commonly quoted intervals). Accordingly, we classify the valuation techniques that use these inputs as either Level 1 or Level 2 depending on the inputs used. We also consider the effect of our counterparties' credit standings in these fair value measurements.

- *Derivative Assets and Liabilities* . At March 31, 2017 and December 31, 2016 , our derivative assets and liabilities consisted of foreign exchange forward contracts involving major currencies. At March 31, 2017 , our derivative assets and liabilities also consisted of various interest rate swap contracts involving major interest rates. Since our derivative assets and liabilities are not traded on an exchange, we value them using standard industry valuation models. Where applicable, these models project future cash flows and discount the amounts to a present value using market-based observable inputs including interest rate curves, credit risk, foreign exchange rates, and forward and spot prices for currencies. These inputs are observable in active markets over the contract term of the derivative instruments we hold, and accordingly, we classify the valuation techniques as Level 2. In evaluating credit risk, we consider the effect of our counterparties' and our own credit standing in the fair value measurements of our derivative assets and liabilities, respectively.

At March 31, 2017 and December 31, 2016 , the fair value measurements of our assets and liabilities that we measure on a recurring basis were as follows (in thousands):

	March 31, 2017			
		Fair Value Measurements at Reporting Date Using		
	Total Fair Value and Carrying Value on Our Balance Sheet	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets:				
Marketable securities:				
Foreign debt	$ 218,291	$ —	$ 218,291	$ —
Foreign government obligations	202,115	—	202,115	—
U.S. debt	64,036	—	64,036	—
Time deposits	305,000	305,000	—	—
Restricted investments	339,700	—	339,700	—
Derivative assets	1,183	—	1,183	—
Total assets	$ 1,130,325	$ 305,000	$ 825,325	$ —
Liabilities:				
Derivative liabilities	$ 27,005	$ —	$ 27,005	$ —

	December 31, 2016			
		Fair Value Measurements at Reporting Date Using		
	Total Fair Value and Carrying Value on Our Balance Sheet	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets:				
Marketable securities:				
Foreign debt	$ 296,819	$ —	$ 296,819	$ —
Foreign government obligations	271,172	—	271,172	—
Time deposits	40,000	40,000	—	—
Restricted investments	339,926	—	339,926	—
Derivative assets	6,078	—	6,078	—
Total assets	$ 953,995	$ 40,000	$ 913,995	$ —
Liabilities:				
Derivative liabilities	$ 7,086	$ —	$ 7,086	$ —

Fair Value of Financial Instruments

The carrying values and fair values of our financial and derivative instruments at March 31, 2017 and December 31, 2016 were as follows (in thousands):

	March 31, 2017		December 31, 2016	
	Carrying Value	Fair Value	Carrying Value	Fair Value
Assets:				
Marketable securities	$ 789,442	$ 789,442	$ 607,991	$ 607,991
Foreign exchange forward contract assets	1,183	1,183	6,078	6,078
Restricted investments	339,700	339,700	339,926	339,926
Notes receivable – noncurrent	7,514	7,582	7,385	7,493
Notes receivable, affiliate – current	19,594	22,147	15,000	16,946
Notes receivable, affiliates – noncurrent	50,000	48,138	54,737	53,586
Liabilities:				
Long-term debt, including current maturities	$ 276,927	$ 292,466	$ 187,826	$ 195,160
Interest rate swap contract liabilities	4,676	4,676	—	—
Foreign exchange forward contract liabilities	22,329	22,329	7,086	7,086

The carrying values on our condensed consolidated balance sheets of our cash, trade accounts receivable, unbilled accounts receivable and retainage, restricted cash, accounts payable, income taxes payable, and accrued expenses approximated their fair values due to their nature and relatively short maturities; therefore, we excluded them from the foregoing table. We estimated the fair value of our notes receivable and long-term debt using a discounted cash flow approach (an income approach) based on observable market inputs. We incorporated the credit risk of our counterparty for all asset fair value measurements and our own credit risk for all liability fair value measurements. Such fair value measurements are considered Level 2 under the fair value hierarchy.

Credit Risk

We have certain financial and derivative instruments that subject us to credit risk. These consist primarily of cash, marketable securities, trade accounts receivable, restricted cash and investments, notes receivable, and foreign exchange forward contracts. We are exposed to credit losses in the event of nonperformance by the counterparties to our financial and derivative instruments. We place cash, marketable securities, restricted cash and investments, and foreign exchange forward contracts with various high-quality financial institutions and limit the amount of credit risk from any one counterparty. We continuously evaluate the credit standing of our counterparty financial institutions. Our net sales are primarily concentrated among a limited number of customers. We monitor the financial condition of our customers and perform credit evaluations whenever considered necessary. Depending upon the sales arrangement, we may require some form of payment security from our customers, including parent guarantees, bank guarantees, or commercial letters of credit.

11. Investments in Unconsolidated Affiliates and Joint Ventures

We have joint ventures or other strategic arrangements with partners in several markets, which are generally used to expedite our penetration of those markets and establish relationships with potential customers. We also enter into joint ventures or strategic arrangements with customers or other entities to maximize the value of particular projects. Some of these arrangements involve and are expected in the future to involve significant investments or other allocations of capital. Investments in unconsolidated entities for which we have significant influence, but not control, over the entities' operating and financial activities are accounted for under the equity method of accounting. Investments in unconsolidated entities for which we do not have the ability to exert such significant influence are accounted for under the cost method of accounting. The following table summarizes our equity and cost method investments as of March 31, 2017 and December 31, 2016 (in thousands):

	March 31, 2017	December 31, 2016
Equity method investments	$ 226,196	$ 232,337
Cost method investments	2,273	2,273
Investments in unconsolidated affiliates and joint ventures	$ 228,469	$ 234,610

8point3 Energy Partners LP

In June 2015, 8point3 Energy Partners LP (the "Partnership"), a limited partnership formed by First Solar and SunPower Corporation (the "Sponsors"), completed its initial public offering (the "IPO") pursuant to a Registration Statement on Form S-1, as amended. As part of the IPO, the Sponsors contributed interests in various projects to 8point3 Operating Company, LLC ("OpCo") in exchange for voting and economic interests in the entity, and the Partnership acquired an economic interest in OpCo using proceeds from the IPO. Since the formation of the Partnership, we and SunPower Corporation have, from time to time, continued to sell interests in solar projects to the Partnership. The Partnership owns and operates this portfolio of solar energy generation projects and is expected to acquire additional interests in projects from the Sponsors. In April 2017, we announced that we were reviewing alternatives for the sale of our interests in the Partnership.

As of March 31, 2017 , we owned an aggregate of 22,116,925 Class B shares representing a 28% voting interest in the Partnership, and an aggregate of 6,721,810 common units and 15,395,115 subordinated units in OpCo together representing a 28% limited liability company interest in the entity. Future quarterly distributions from OpCo are subject to a subordination period in which holders of the subordinated units are not entitled to receive any distributions until the common units have received their minimum quarterly distribution plus any arrearages in the payment of minimum distributions from prior quarters. The subordination period will end after OpCo has earned and paid minimum quarterly distributions for three years ending on or after August 31, 2018 and there are no outstanding arrearages on common units. Notwithstanding the foregoing, the subordination period could end after OpCo has earned and paid 150% of minimum quarterly distributions, plus the related distributions to incentive distribution right holders, for one year ending on or after August 31, 2016 and there are no outstanding arrearages on common units. At the end of the subordination period, all subordinated units will convert to common units on a one-for-one basis. During the three months ended March 31, 2017 , we received distributions from OpCo of $5.5 million . We also hold certain incentive distribution rights in OpCo, which represent a right to incremental distributions after certain distribution thresholds are met.

The Partnership is managed and controlled by its general partner, 8point3 General Partner, LLC ("General Partner"), and we account for our interest in OpCo, a subsidiary of the Partnership, under the equity method of accounting as we are able to exercise significant influence over the Partnership due to our representation on the board of directors of its General Partner. Under the equity method of accounting, we recognize equity in earnings for our proportionate share of OpCo's net income or loss, including adjustments for the amortization of a $41.7 million remaining basis difference, which resulted from the cost of our investment differing from our proportionate share of OpCo's equity. We recognized equity in earnings, net of tax, from our investment in OpCo of $0.8 million and $6.1 million for the three months ended March 31, 2017 and 2016 , respectively. As of March 31, 2017 and December 31, 2016 , the carrying value of our investment in OpCo was $202.6 million and $206.8 million , respectively.

In connection with the IPO, we also entered into an agreement with a subsidiary of the Partnership to lease back one of our originally contributed projects, Maryland Solar, until December 31, 2019. Under the terms of the agreement, we make fixed rent payments to the Partnership's subsidiary and are entitled to all of the energy generated by the project. Due to our continuing involvement with the project, we account for the leaseback agreement as a financing transaction. As of March 31, 2017 and December 31, 2016 , our financing obligation associated with the leaseback was $39.0 million and $38.5 million , respectively.

In December 2016, we completed the sale of our remaining 34% interest in the 300 MW Desert Stateline project located in San Bernardino County, California to OpCo for aggregate consideration of $329.5 million , including a $50.0 million promissory note. The promissory note is unsecured and matures in December 2020. The promissory note bears interest at 4% per annum, which rate may increase to 6% per annum (i) upon the occurrence and during the continuation of a specified event of default and (ii) in respect of amounts accrued as payments-in-kind pursuant to the terms of such promissory note. Subject to certain conditions, OpCo may prepay the promissory note. Until OpCo has paid in full the principal and interest on the promissory note, OpCo is restricted in its ability to: (i) acquire interests in additional projects (other than the acquisition of an 8 MW project located in Kern County, California); (ii) use the net proceeds of equity issuances except as prescribed in the promissory note; (iii) incur additional indebtedness to which the promissory note would be subordinate; and (iv) extend the maturity date under OpCo's existing credit facility. As of March 31, 2017 and December 31, 2016 , the balance outstanding on the promissory note was $50.0 million .

We provide O&M services to certain of the Partnership's partially owned project entities, including SG2 Holdings, LLC; Lost Hills Blackwell Holdings, LLC; NS Solar Holdings, LLC; Kingbird Solar A, LLC; Kingbird Solar B, LLC; and Desert Stateline LLC. During the three months ended March 31, 2017 and 2016 , we recognized revenue of $2.9 million and $1.3 million , respectively, for such O&M services.

In June 2015, OpCo entered into a $525.0 million senior secured credit facility, consisting of a $300.0 million term loan facility, a $25.0 million delayed draw term loan facility, and a $200.0 million revolving credit facility (the "OpCo Credit Facility"). In September 2016, OpCo amended its senior secured credit facility to include an incremental $250.0 million term loan facility, which increased the maximum borrowing capacity under the OpCo Credit Facility to $775.0 million . The OpCo Credit Facility is secured by a pledge of the Sponsors' equity interests in OpCo.

Clean Energy Collective, LLC

In November 2014, we entered into various agreements to purchase a minority ownership interest in Clean Energy Collective, LLC ("CEC"). This investment provided us with additional access to the distributed generation market and a partner to develop and market community solar offerings to North American residential customers and businesses directly on behalf of client utility companies. As part of the investment, we also received a warrant, valued at $1.8 million , to purchase additional ownership interests at prices at or above our initial investment price per unit.

In addition to our equity investment in CEC, we also entered into a loan agreement to provide CEC with term loan advances up to $15.0 million . All term loans are due in November 2017 on the third anniversary of the initial loan agreement. Interest is payable semiannually at rates ranging from 7% to 16% depending on CEC's current capital structure. As of March 31, 2017 and December 31, 2016 , the balance outstanding on the term loans was $15.0 million . In February 2016, we entered into a convertible loan agreement with CEC for $4.6 million , which was funded in April 2016. The convertible loan bears interest at 10% per annum, and the outstanding principal and interest are due in February 2018 on the second anniversary of the initial loan agreement unless converted earlier pursuant to a qualified equity financing by CEC.

CEC is considered a variable interest entity, or VIE, and our 27% ownership interest in and loans to the company are considered variable interests. We account for our investment in CEC under the equity method of accounting as we concluded we are not the primary beneficiary of the company given that we do not have the power to make decisions over the activities that most significantly impact the company's economic performance. Under the equity method of accounting, we recognize equity in earnings for our proportionate share of CEC's net income or loss including adjustments for the amortization of a basis difference resulting from the cost of our investment differing from our proportionate share of CEC's equity. During the three months ended March 31, 2017 and 2016 , we recognized losses, net of tax, of $1.2 million and $1.3 million , respectively, from our investment in CEC. As of March 31, 2017 and December 31, 2016 , the carrying value of our investment was $8.6 million and $10.5 million , respectively.

12. Debt

Our long-term debt consisted of the following at March 31, 2017 and December 31, 2016 (in thousands):

		Balance (USD)	
Loan Agreement	**Loan Denomination**	**March 31, 2017**	**December 31, 2016**
Revolving Credit Facility	USD	$ —	$ —
Luz del Norte Credit Facilities	USD	180,864	180,939
Ishikawa Credit Agreement	JPY	65,621	—
Japan Credit Facility	JPY	7,485	9,477
Marikal and Mahabubnagar Credit Facilities	INR	4,053	4,067
Polepally Credit Facility	INR	2,195	2,208
Hindupur Credit Facility	INR	18,920	—
Manildra Credit Facility	AUD	11,853	—
Capital lease obligations	Various	436	562
Long-term debt principal		291,427	197,253
Less: unamortized discount and debt issuance costs		(14,064)	(8,865)
Total long-term debt		277,363	188,388
Less: current portion		(11,540)	(27,966)
Noncurrent portion		$ 265,823	$ 160,422

Revolving Credit Facility

Our amended and restated credit agreement with several financial institutions as lenders and JPMorgan Chase Bank, N.A. as administrative agent provides us with a senior secured credit facility (the "Revolving Credit Facility") with an aggregate available amount of $700.0 million , with the right to request an increase up to $900.0 million , subject to certain conditions. Borrowings under the Revolving Credit Facility bear interest at (i) the London Interbank Offered Rate ("LIBOR"), adjusted for Eurocurrency reserve requirements, plus a margin of 2.25% or (ii) a base rate as defined in the credit agreement plus a margin of 1.25%, depending on the type of borrowing requested . These margins are subject to adjustment depending on our consolidated leverage ratio. We had no borrowings under our Revolving Credit Facility as of March 31, 2017 and December 31, 2016 and had issued $123.3 million and $125.0 million , respectively, of letters of credit using availability under the facility, leaving a total remaining availability of $576.7 million and $575.0 million , respectively. Loans and letters of credit issued under the Revolving Credit Facility are jointly and severally guaranteed by First Solar, Inc. ("FSI"); First Solar Electric, LLC; First Solar Electric (California), Inc.; and First Solar Development, LLC and are secured by interests in substantially all of the guarantors' tangible and intangible assets other than certain excluded assets.

In January 2017, we entered into a sixth amendment to the Revolving Credit Facility. The amendment modified certain financial condition covenants to remove the requirement to maintain a minimum consolidated EBITDA and to increase the liquidity availability required to be maintained from $400.0 million to $800.0 million . Following this amendment, the remaining covenants of the credit agreement include a leverage ratio covenant and the minimum liquidity covenant noted above. Additionally, the credit agreement contains customary non-financial covenants and certain restrictions on our ability to pay dividends. We were in compliance with all covenants of the facility as of March 31, 2017 .

In addition to paying interest on outstanding principal under the Revolving Credit Facility, we are required to pay a commitment fee at a rate of 0.375% per annum, based on the average daily unused commitments under the facility. The commitment fee may also be adjusted due to changes in our consolidated leverage ratio. We also pay a letter of credit fee based on the applicable margin for Eurocurrency revolving loans on the face amount of each letter of credit and a fronting fee of 0.125% .

Luz del Norte Credit Facilities

In August 2014, Parque Solar Fotovoltaico Luz del Norte SpA (“Luz del Norte”), our indirect wholly-owned subsidiary, entered into credit facilities with the Overseas Private Investment Corporation (“OPIC”) and the International Finance Corporation (“IFC”) to provide limited-recourse senior secured debt financing for the design, development, financing, construction, testing, commissioning, operation, and maintenance of a 141 MW PV solar power plant located near Copiapó, Chile. At the same time, Luz del Norte also entered into a Chilean peso facility (“VAT facility” and together with the OPIC and IFC loans, the “Luz del Norte Credit Facilities”) with Banco de Crédito e Inversiones to fund Chilean value added tax associated with the construction of the Luz del Norte project. In February 2017, we extended the maturity of the VAT facility until June 2017 and in March 2017, we repaid the remaining balance on the VAT facility. As of December 31, 2016 , the balance outstanding on the VAT facility was $13.7 million .

In March 2017, we amended the terms of the OPIC and IFC credit facilities. Such amendments (i) allowed for the capitalization of accrued and unpaid interest through March 15, 2017, along with the capitalization of certain future interest payments as variable rate loans under the credit facilities, (ii) allowed for the conversion of certain fixed rate loans to variable rate loans upon scheduled repayment, (iii) extended the maturity of the OPIC and IFC loans until June 2037, and (iv) canceled the remaining borrowing capacity under the OPIC and IFC credit facilities with the exception of the capitalization of certain future interest payments. As of March 31, 2017 and December 31, 2016 , the balance outstanding on the OPIC loans was $135.5 million and $125.1 million , respectively. As of March 31, 2017 and December 31, 2016 , the balance outstanding on the IFC loans was $45.4 million and $42.2 million , respectively.

The OPIC and IFC loans are secured by liens over all of Luz del Norte’s assets, which had an aggregate book value of $341.2 million , including intercompany charges, as of March 31, 2017 and by a pledge of all of the equity interests in the entity. The Luz del Norte Credit Facilities contain customary representations and warranties, covenants, and events of default for comparable credit facilities. We were in compliance with all covenants related to the Luz del Norte Credit Facilities as of March 31, 2017 .

Ishikawa Credit Agreement

In December 2016, FS Japan Project 12 GK (“Ishikawa”), our indirect wholly-owned subsidiary, entered into a credit agreement (the “Ishikawa Credit Agreement”) with Mizuho Bank Ltd. for aggregate borrowings of up to ¥27.3 billion ($245.4 million) for the development and construction of a 59 MW PV solar power plant located in Ishikawa, Japan. The credit agreement consists of a ¥24.0 billion ($215.7 million) senior loan facility, a ¥2.1 billion ($18.9 million) consumption tax facility, and a ¥1.2 billion ($10.8 million) letter of credit facility. The senior loan facility matures in October 2036, and the consumption tax facility matures in April 2020. The credit agreement is secured by pledges of Ishikawa’s assets, accounts, material project documents, and by the equity interests in the entity. As of March 31, 2017 , the balance outstanding on the credit agreement was $65.6 million . The credit agreement contains customary representations and warranties, covenants, and events of default for comparable loan facilities in Japan. We were in compliance with all covenants related to the Ishikawa Credit Agreement as of March 31, 2017 .

Japan Credit Facility

In September 2015, First Solar Japan GK, our wholly-owned subsidiary, entered into a construction loan facility with Mizuho Bank Ltd. for borrowings up to ¥4.0 billion ($36.0 million) for the development and construction of utility-scale PV solar power plants in Japan (the “Japan Credit Facility”). In September 2016, First Solar Japan GK renewed the facility for an additional one-year period until September 2017. The facility is guaranteed by FSI and secured by pledges of certain projects’ cash accounts and other rights in the projects. As of March 31, 2017 and December 31, 2016 , the balance outstanding on the facility was $7.5 million and $9.5 million , respectively. The facility contains customary representations and warranties, covenants, and events of default for comparable construction loan facilities in Japan. We were in compliance with all covenants related to the Japan Credit Facility as of March 31, 2017 .

Marikal and Mahabubnagar Credit Facilities

In March 2015, Marikal Solar Parks Private Limited and Mahabubnagar Solar Parks Private Limited, our indirect wholly-owned subsidiaries, entered into term loan facilities (the "Marikal and Mahabubnagar Credit Facilities") with Axis Bank as administrative agent for combined aggregate borrowings up to INR 1.1 billion ($16.9 million) for the development and construction of two 10 MW PV solar power plants located in Telangana, India. The term loan facilities have a combined letter of credit sub-limit of INR 0.8 billion ($12.3 million), which may also be used to support construction activities. As of March 31, 2017 and December 31, 2016 , we had issued INR 0.8 billion ($12.3 million) and INR 0.8 billion ($11.2 million) of letters of credit under the term loan facilities, respectively. The term loan facilities mature in December 2028 and are secured by certain assets of the borrowers, which had an aggregate book value of $103.0 million , including intercompany charges, as of March 31, 2017 and by a pledge of a portion of the equity interests in the borrowers. As of March 31, 2017 and December 31, 2016 , the balance outstanding on the term loan facilities was $4.1 million . The term loan facilities contain various financial covenants, including a leverage ratio covenant, a debt service ratio covenant, and a fixed asset coverage ratio covenant. We were in compliance with all covenants related to the term loan facilities as of March 31, 2017 .

Polepally Credit Facility

In March 2016, Polepally Solar Parks Private Limited, our indirect wholly-owned subsidiary, entered into a term loan facility (the "Polepally Credit Facility") with Axis Bank as administrative agent for borrowings up to INR 1.3 billion ($20.0 million) for costs related to a 25 MW PV solar power plant located in Telangana, India. The term loan facility has a letter of credit sub-limit of INR 1.1 billion ($16.9 million), which may also be used for project related costs. As of March 31, 2017 and December 31, 2016 , we had issued INR 1.1 billion ($16.9 million) and INR 1.0 billion ($15.3 million), respectively, of letters of credit under the term loan facility. The term loan facility matures in September 2029 and is secured by certain assets of the borrower, which had an aggregate book value of $35.0 million , including intercompany charges, as of March 31, 2017 and by a pledge of a portion of the equity interests in the borrower. In addition, the term loan facility is guaranteed by FSI until certain conditions are met, including the achievement of commercial operations by the plant and various other compliance and performance metrics. As of March 31, 2017 and December 31, 2016 , the balance outstanding on the term loan facility was $2.2 million . The term loan facility contains various covenants including a leverage ratio covenant, a debt service ratio covenant, and a fixed asset ratio covenant. We were in compliance with all covenants related to the term loan facility as of March 31, 2017 .

Hindupur Credit Facility

In November 2016, Hindupur Solar Parks Private Limited, our indirect wholly-owned subsidiary, entered into a term loan facility (the "Hindupur Credit Facility") with Yes Bank Limited for borrowings up to INR 4.3 billion ($66.2 million) for costs related to an 80 MW portfolio of PV solar power plants located in Andhra Pradesh, India. The term loan facility has a letter of credit sub-limit of INR 3.2 billion ($49.3 million), which may also be used for project related costs. As of March 31, 2017 , we had issued INR 3.2 billion ($49.3 million) of letters of credit under the term loan facility. The term loan facility matures in December 2030 and is secured by certain assets of the borrower, which had an aggregate book value of $105.6 million , including intercompany charges, as of March 31, 2017 and by a pledge of a portion of the equity interests in the borrower. In addition, the term loan facility is guaranteed by FSI until certain conditions are met, including the achievement of commercial operations by the plants and various other compliance and performance metrics. As of March 31, 2017 , the balance outstanding on the term loan facility was $18.9 million . We were in compliance with all covenants related to the term loan facility as of March 31, 2017 .

Manildra Credit Facility

In March 2017, Manildra Finco Pty Ltd, our indirect wholly-owned subsidiary and project financing company, entered into a term loan agreement (the "Manildra Credit Facility") with Société Générale S.A. and The Bank of Tokyo-Mitsubishi UFJ, Ltd. for borrowings up to AUD 81.7 million ($62.6 million) for costs related to a 49 MW PV solar power plant located in New South Wales, Australia. The credit facility consists of an AUD 75.7 million ($58.0 million) construction loan facility and an additional AUD 6.0 million ($4.6 million) goods and service tax facility ("GST facility") to fund certain taxes associated with the construction of the project. Upon completion of the project's construction, the construction loan facility will convert to a term loan facility, which matures in March 2022. The GST facility matures in March 2019. The credit facility is secured by pledges of the borrower's assets, accounts, material project documents, and by the equity interests in the entity. As of March 31, 2017 , the balance outstanding on the term loan facility was $11.9 million . The credit facility contains customary representations and warranties, covenants, and events of default for comparable construction loan facilities in Australia. We were in compliance with all covenants related to the Manildra Credit Facility as of March 31, 2017 .

Variable Interest Rate Risk

Certain of our long-term debt agreements bear interest at prime, LIBOR, TIBOR, Bank Bill Swap Bid Rate ("BBSY"), or equivalent variable rates. A disruption of the credit environment, as previously experienced, could negatively impact interbank lending and, therefore, negatively impact these floating rates. An increase in prime, LIBOR, TIBOR, or equivalent variable rates would increase the cost of borrowing under our Revolving Credit Facility and various project construction credit facilities.

Our long-term debt borrowing rates as of March 31, 2017 were as follows:

Loan Agreement	Borrowing Rate at March 31, 2017
Revolving Credit Facility	3.23%
Luz del Norte Credit Facilities (1)	Fixed rate loans at bank rate plus 3.50% Variable rate loans at 91-Day U.S. Treasury Bill Yield or LIBOR plus 3.50%
Ishikawa Credit Agreement	Senior loan facility at 6-month TIBOR plus 0.75% (2) Consumption tax facility at 3-month TIBOR plus 0.5%
Japan Credit Facility	1-month TIBOR plus 0.5%
Marikal and Mahabubnagar Credit Facilities	Bank rate plus 2.35%
Polepally Credit Facility	Bank rate plus 2.35%
Hindupur Credit Facility	Bank rate plus 1.0%
Manildra Credit Facility	Construction loan facility at 1-month BBSY plus 1.70% (2) GST facility at 1-month BBSY plus 1.60%
Capital lease obligations	Various

(1) Outstanding balance comprised of $167.3 million of fixed rate loans and $13.6 million of variable rate loans as of March 31, 2017 .

(2) We have entered into interest rate swap contracts to hedge a portion of these variable rates. See Note 9. "Derivative Financial Instruments" to our condensed consolidated financial statements for additional information.

Future Principal Payments

At March 31, 2017 , the future principal payments on our long-term debt, excluding payments related to capital leases, were due as follows (in thousands):

	Total Debt
Remainder of 2017	$ 10,734
2018	4,251
2019	9,082
2020	16,027
2021	10,707
Thereafter	240,190
Total long-term debt future principal payments	$ 290,991

13. Commitments and Contingencies

Commercial Commitments

During the normal course of business, we enter into commercial commitments in the form of letters of credit, bank guarantees, and surety bonds to provide financial and performance assurance to third parties. Our Revolving Credit Facility provides us with a sub-limit of $500.0 million to issue letters of credit, subject to certain additional limits depending on the currencies of the letters of credit, at a fee based on the applicable margin for Eurocurrency revolving loans and a fronting fee. As of March 31, 2017 , we had $123.3 million in letters of credit issued under our Revolving Credit Facility, leaving $376.7 million of availability for the issuance of letters of credit. The majority of these letters of credit were supporting our systems business projects. As of March 31, 2017 , we also had $3.4 million of bank guarantees and letters of credit under separate agreements that were posted by certain of our foreign subsidiaries, $204.5 million of letters of credit issued under three bilateral facilities, of which $28.0 million was secured with cash, and $128.4 million of surety bonds outstanding primarily for our systems business projects. The available bonding capacity under our surety lines was $654.7 million as of March 31, 2017 .

In addition to the commercial commitments noted above, we also have certain commercial letters of credit, also known as letters of undertaking, which have been issued under our Marikal and Mahabubnagar Credit Facilities, Polepally Credit Facility, and Hindupur Credit Facility as discussed in Note 12. “Debt” to our condensed consolidated financial statements. Such commercial letters of credit represent conditional commitments on the part of the issuing financial institution to provide payment to third-party beneficiaries on amounts drawn in accordance with the terms of the individual documents. As part of the financing of the associated systems business projects, we discounted these commercial letters of credit with other financial institutions, whereby we received immediate funding for less than the face value of the letters and the discounting financial institution agreed to draw upon such letters at a future date. At the time of draw, the face value of the commercial letters of credit will be included in the balance outstanding of the respective credit facility. In the periods between the receipt of cash and the subsequent draw on the commercial letters of credit, we accrete the discounted value of the letters to their face value and record such accretion as Interest expense, net on our condensed consolidated statement of operations. As of March 31, 2017 and December 31, 2016 , we accrued $69.9 million and $26.6 million , respectively, for contingent obligations associated with discounted commercial letters of credit. Such amounts were classified as “ Other liabilities ” on our condensed consolidated balance sheets to align with the timing in which we expect to settle such obligations as payments under the associated credit facilities.

Product Warranties

When we recognize revenue for module or systems sales, we accrue liabilities for the estimated future costs of meeting our limited warranty obligations for both modules and the balance of the systems. We make and revise these estimates based primarily on the number of our solar modules under warranty installed at customer locations, our historical experience with warranty claims, our monitoring of field installation sites, our internal testing of and the expected future performance of our solar modules and BoS components, and our estimated replacement costs. From time to time, we have taken remediation actions with respect to affected modules beyond our limited warranties, and we may elect to do so in the future, in which case we would incur additional expenses. Such potential voluntary future remediation actions beyond our limited warranty obligations could be material to our condensed consolidated statements of operations if we commit to any such remediation actions.

Product warranty activities during the three months ended March 31, 2017 and 2016 were as follows (in thousands):

	Three Months Ended March 31,	
	2017	2016
Product warranty liability, beginning of period	$ 252,408	$ 231,751
Accruals for new warranties issued	5,016	7,902
Settlements	(1,667)	(2,382)
Changes in estimate of product warranty liability	(2,335)	4,865
Product warranty liability, end of period	$ 253,422	$ 242,136
Current portion of warranty liability	$ 40,432	$ 41,174
Noncurrent portion of warranty liability	$ 212,990	$ 200,962

We estimate our limited product warranty liability for power output and defects in materials and workmanship under normal use and service conditions based on a warranty return rate of approximately 1% to 3% for modules covered under warranty. As of March 31, 2017 , a 1% change in the estimated warranty return rate would change our module warranty liability by $86.3 million , and a 1% change in the estimated warranty return rate for BoS components would not have a material impact on the associated warranty liability.

Performance Guarantees

As part of our systems business, we conduct performance testing of a system prior to substantial completion to confirm the system meets its operational and capacity expectations noted in the EPC agreement. In addition, we may provide an energy performance test during the first or second year of a system's operation to demonstrate that the actual energy generation for the applicable year meets or exceeds the modeled energy expectation, after certain adjustments. If there is an underperformance event with regards to these tests, we may incur liquidated damages as a percentage of the EPC contract price. In certain instances, a bonus payment may be received at the end of the first year if the system performs above a specified level. As of March 31, 2017 and December 31, 2016 , we accrued $5.2 million and $6.3 million , respectively, of estimated obligations under such arrangements, which were classified as " Other current liabilities " in the condensed consolidated balance sheets.

As part of our O&M service offerings, we typically offer an effective availability guarantee, which stipulates that a system will be available to generate a certain percentage of total possible energy during a specific period after adjusting for factors outside of our control as the service provider, such as weather, curtailment, outages, force majeure, and other conditions that may affect system availability. Effective availability guarantees are only offered as part of our O&M services and terminate at the end of an O&M arrangement. If we fail to meet the contractual threshold for these guarantees, we may incur liquidated damages for certain lost energy under the PPA. Our O&M agreements typically contain provisions limiting our total potential losses under an agreement, including amounts paid for liquidated damages, to a percentage of O&M fees. Many of our O&M agreements also contain provisions whereby we may receive a bonus payment if system availability exceeds a separate threshold. As of March 31, 2017 and December 31, 2016 , we did not accrue any estimated obligations under our effective availability guarantees.

Indemnifications

In certain limited circumstances, we have provided indemnifications to customers, including project tax equity investors, under which we are contractually obligated to compensate such parties for losses they suffer resulting from a breach of a representation, warranty, or covenant or a reduction in tax benefits received, including investment tax credits. Project related tax benefits are, in part, based on guidance provided by the Internal Revenue Service and U.S. Treasury Department, which includes assumptions regarding the fair value of qualifying PV solar power systems. For any sales contracts that have such indemnification provisions, we initially recognize a liability under ASC 460 for the estimated premium that would be required by a guarantor to issue the same indemnity in a standalone arm's-length transaction with an unrelated party. We recognize such liabilities at the greater of the fair value of the indemnity or the contingent liability required to be recognized under ASC 450 and reduce the revenue recognized in the related transaction.

As applicable, we initially estimate the fair value of any such indemnities provided based on the cost of insurance policies that cover the underlying risks being indemnified and may purchase such policies to mitigate our exposure to potential indemnification payments. After an indemnification liability is recorded, we derecognize such amount pursuant to ASC 460-10-35-2 depending on the nature of the indemnity, which derecognition typically occurs upon expiration or settlement of the arrangement, and any contingent aspects of the indemnity are accounted for in accordance with ASC 450. Changes to any such indemnification liabilities provided are recorded as adjustments to revenue. As of March 31, 2017 and December 31, 2016 , we accrued $100.0 million of current indemnification liabilities and $2.7 million and $1.9 million , respectively, of noncurrent indemnification liabilities associated with such tax related indemnifications. As of March 31, 2017 , the maximum potential amount of future payments under our tax related indemnifications was $210.8 million .

Contingent Consideration

As part of our Enki acquisition in October 2016, we agreed to pay additional consideration of up to $7.0 million to the selling shareholders contingent upon the achievement of certain production and module performance milestones. See Note 5. "Business Acquisitions" to our condensed consolidated financial statements for further discussion of this acquisition. As of March 31, 2017 and December 31, 2016 , we had recorded $7.0 million of long-term liabilities for such contingent obligations based on their estimated fair values.

We continually seek to make additions to our advanced-stage project pipeline and are also actively developing our early to mid-stage project pipeline in order to secure PPAs and are also pursuing opportunities to acquire advanced-stage projects, which already have PPAs in place. In connection with such project acquisitions, we may agree to pay additional amounts to project sellers upon achievement of certain project-related milestones, such as obtaining a PPA, obtaining financing, and selling the project to a new owner. We recognize an estimated project acquisition contingent liability when we determine that such liability is both probable and reasonably estimable, and the carrying amount of the related project asset is correspondingly increased. As of March 31, 2017 and December 31, 2016 , we recorded $11.7 million and $19.6 million of current liabilities, respectively, and $2.9 million and $3.5 million of long-term liabilities, respectively, for such contingent obligations. Any future differences between the acquisition-date contingent obligation estimate and the ultimate settlement of the obligations will be recognized primarily as an adjustment to project assets, as contingent payments are considered direct and incremental to the underlying value of the related projects.

Solar Module Collection and Recycling Liability

We voluntarily established a module collection and recycling program to collect and recycle modules sold and covered under such program once the modules reach the end of their useful lives. For customer sales contracts that include modules covered under this program, we agree to pay the costs for the collection and recycling of qualifying solar modules, and the end-users agree to notify us, disassemble their solar power systems, package the solar modules for shipment, and revert ownership rights over the modules back to us at the end of the modules' service lives. Accordingly, we record our collection and recycling obligations within "Cost of sales" at the time of sale based on the estimated cost to collect and recycle the covered solar modules. During the three months ended March 31, 2017 and 2016 , substantially all of our modules sold were not subject to our collection and recycling program.

We estimate the cost of our collection and recycling obligations based on the present value of the expected probability-weighted future cost of collecting and recycling the solar modules, which includes estimates for the cost of packaging materials, the cost of freight from the solar module installation sites to a recycling center, the material, labor, capital costs, and scale of recycling centers, and an estimated third-party profit margin and return on risk for collection and recycling services. We base these estimates on (i) our experience collecting and recycling our solar modules, (ii) the expected timing of when our solar modules will be returned for recycling, and (iii) expected economic conditions at the time the solar modules will be collected and recycled. In the periods between the time of sale and the related settlement of the collection and recycling obligation, we accrete the carrying amount of the associated liability by applying the discount rate used for its initial measurement. We classify accretion as an operating expense within "Selling, general and administrative" expense on our condensed consolidated statements of operations. We periodically review our estimates of expected future recycling costs and may adjust our liability accordingly.

Our module collection and recycling liability was $169.1 million and $166.3 million as of March 31, 2017 and December 31, 2016 , respectively. As of March 31, 2017 , a 1% increase in the annualized inflation rate used in our estimated future collection and recycling cost per module would increase our liability by $38.2 million , and a 1% decrease in that rate would decrease our liability by $31.4 million .

See Note 7. "Restricted Cash and Investments" to our condensed consolidated financial statements for more information about our arrangements for funding this liability.

Legal Proceedings

We are party to legal matters and claims in the normal course of our operations. While we believe that the ultimate outcome of these matters will not have a material adverse effect on our financial position, results of operations, or cash flows, the outcome of these matters is not determinable with certainty, and negative outcomes may adversely affect us.

Class Action

On March 15, 2012, a purported class action lawsuit titled Smilovits v. First Solar, Inc., et al., Case No. 2:12-cv-00555-DGC, was filed in the United States District Court for the District of Arizona (hereafter "Arizona District Court") against the Company and certain of our current and former directors and officers. The complaint was filed on behalf of persons who purchased or otherwise acquired the Company's publicly traded securities between April 30, 2008 and February 28, 2012 (the "Class Action"). The complaint generally alleges that the defendants violated Sections 10(b) and 20(a) of the Securities Exchange Act of 1934 by making false and misleading statements regarding the Company's financial performance and prospects. The action includes claims for damages, including interest, and an award of reasonable costs and attorneys' fees to the putative class. The Company believes it has meritorious defenses and will vigorously defend this action.

On July 23, 2012, the Arizona District Court issued an order appointing as lead plaintiffs in the Class Action the Mineworkers' Pension Scheme and British Coal Staff Superannuation Scheme (collectively "Pension Schemes"). The Pension Schemes filed an amended complaint on August 17, 2012, which contains similar allegations and seeks similar relief as the original complaint. Defendants filed a motion to dismiss on September 14, 2012. On December 17, 2012, the court denied defendants' motion to dismiss. On October 8, 2013, the Arizona District Court granted the Pension Schemes' motion for class certification, and certified a class comprised of all persons who purchased or otherwise acquired publicly traded securities of the Company between April 30, 2008 and February 28, 2012 and were damaged thereby, excluding defendants and certain related parties. Merits discovery closed on February 27, 2015.

Defendants filed a motion for summary judgment on March 27, 2015. On August 11, 2015, the Arizona District Court granted defendants' motion in part and denied it in part, and certified an issue for immediate appeal to the Ninth Circuit Court of Appeals (the "Ninth Circuit"). First Solar filed a petition for interlocutory appeal with the Ninth Circuit, and that petition was granted on November 18, 2015. On May 20, 2016, the Pension Schemes moved to vacate the order granting the petition, dismiss the appeal, and stay the merits briefing schedule. On December 13, 2016, the Ninth Circuit denied the Pension Schemes' motion. Merits briefing on the appeal is ongoing. The Arizona District Court has entered a stay of the proceedings in district court until the appeal is decided. Given the pending appeal, the need for further expert discovery, and the uncertainties of trial, we are not in a position to assess whether any loss or adverse effect on our financial condition is probable or remote or to estimate the range of potential loss, if any.

Opt-Out Action

On June 23, 2015, a suit titled Maverick Fund, L.D.C. v. First Solar, Inc., et al., Case No. 2:15-cv-01156-ROS, was filed in Arizona District Court by putative stockholders that opted out of the Class Action. The complaint names the Company and certain of our current and former directors and officers as defendants, and alleges that the defendants violated Sections 10(b) and 20(a) of the Securities Exchange Act of 1934, and violated state law, by making false and misleading statements regarding the Company's financial performance and prospects. The action includes claims for recessionary and actual damages, interest, punitive damages, and an award of reasonable attorneys' fees, expert fees, and costs. The Company believes it has meritorious defenses and will vigorously defend this action.

The Arizona District Court has extended the deadline for responding to the complaint until after the Ninth Circuit resolves the appeal in the Smilovits matter described above. Accordingly, we are not in a position to assess whether any loss or adverse effect on our financial condition is probable or remote or to estimate the range of potential loss, if any.

Derivative Actions

On April 3, 2012, a derivative action titled Tsevegmid v. Ahearn, et al., Case No. 1:12-cv-00417-CJB, was filed by a putative stockholder on behalf of the Company in the United States District Court for the District of Delaware (hereafter "Delaware District Court") against certain current and former directors and officers of the Company, alleging breach of fiduciary duties and unjust enrichment. The complaint generally alleges that from June 1, 2008, to March 7, 2012, the defendants caused or allowed false and misleading statements to be made concerning the Company's financial performance and prospects. The action includes claims for, among other things, damages in favor of the Company, certain corporate actions to purportedly improve the Company's corporate governance, and an award of costs and expenses to the putative plaintiff stockholder, including attorneys' fees. On April 10, 2012, a second derivative complaint was filed in the Delaware District Court. The complaint, titled Brownlee v. Ahearn, et al., Case No. 1:12-cv-00456-CJB, contains similar allegations and seeks similar relief to the Tsevegmid action. By court order on April 30, 2012, pursuant to the parties' stipulation, the Tsevegmid action and the Brownlee action were consolidated into a single action in the Delaware District Court. On May 15, 2012, defendants filed a motion to challenge Delaware as the appropriate venue for the consolidated action. On March 4, 2013, the magistrate judge issued a Report and Recommendation recommending to the court that defendants' motion be granted and that the case be transferred to the Arizona District Court. On July 12, 2013, the court adopted the magistrate judge's Report and Recommendation and ordered the case transferred to the Arizona District Court. The transfer was completed on July 15, 2013.

On April 12, 2012, a derivative complaint was filed in the Arizona District Court, titled Tindall v. Ahearn, et al., Case No. 2:12-cv-00769-ROS. In addition to alleging claims and seeking relief similar to the claims and relief asserted in the Tsevegmid and Brownlee actions, the Tindall complaint alleges violations of Sections 14(a) and 20(b) of the Securities Exchange Act of 1934. On April 19, 2012, a second derivative complaint was filed in the Arizona District Court, titled Nederhood v. Ahearn, et al., Case No. 2:12-cv-00819-JWS. The Nederhood complaint contains similar allegations and seeks similar relief to the Tsevegmid and Brownlee actions. On May 17, 2012 and May 30, 2012, respectively, two additional derivative complaints, containing similar allegations and seeking similar relief as the Nederhood complaint, were filed in Arizona District Court: Morris v. Ahearn, et al., Case No. 2:12-cv-01031-JAT and Tan v. Ahearn, et al., 2:12-cv-01144-NVW.

On July 17, 2012, the Arizona District Court issued an order granting First Solar's motion to transfer the derivative actions to Judge David Campbell, the judge to whom the Smilovits class action is assigned. On August 8, 2012, the court consolidated the four derivative actions pending in Arizona District Court, and on August 31, 2012, plaintiffs filed an amended complaint. Defendants filed a motion to stay the action on September 14, 2012. On December 17, 2012, the Arizona District Court granted defendants' motion to stay pending resolution of the Smilovits class action. On August 13, 2013, Judge Campbell consolidated the two derivative actions transferred from the Delaware District Court with the stayed Arizona derivative actions. On February 19, 2016, the Arizona District Court issued an order lifting the stay in part. Pursuant to the February 19, 2016 order, the plaintiffs filed an amended complaint on March 11, 2016, and defendants filed a motion to dismiss the amended complaint on April 1, 2016. On June 30, 2016, the Arizona District Court granted defendants' motion to dismiss the insider trading and unjust enrichment claims with prejudice, and further granted defendants' motion to dismiss the claims for alleged breaches of fiduciary duties with leave to amend. On July 15, 2016, plaintiffs filed a motion to reconsider certain aspects of the order granting defendants' motion to dismiss. The Arizona District Court denied the plaintiffs' motion for reconsideration on August 4, 2016. On July 15, 2016, plaintiffs filed a motion to intervene, lift the stay, and unseal documents in the securities Class Action. On September 30, 2016, the Arizona District Court denied plaintiffs' motion. On October 17, 2016, plaintiffs filed a notice of appeal to the Ninth Circuit of the September 30, 2016 order. On October 27, 2016, plaintiffs filed a motion to extend the October 31, 2016 deadline to file an amended complaint. On November 29, 2016, the Arizona District Court denied plaintiffs' request and directed the clerk to terminate the action. On January 23, 2017, the Arizona District Court entered judgment in favor of Defendants and terminated the action. On January 27, 2017, plaintiffs filed a notice of appeal to the Ninth Circuit. Merits briefing on plaintiffs' appeals is ongoing.

On July 16, 2013, a derivative complaint was filed in the Superior Court of Arizona, Maricopa County, titled Bargar, et al. v. Ahearn, et al., Case No. CV2013-009938, by a putative stockholder against certain current and former directors and officers of the Company. The complaint contains similar allegations to the Delaware and Arizona derivative cases, and includes claims for, among other things, breach of fiduciary duties, insider trading, unjust enrichment, and waste of corporate assets. By court order on October 3, 2013, the Superior Court of Arizona, Maricopa County granted the parties' stipulation to defer defendants' response to the complaint pending resolution of the Smilovits class action or expiration of the stay issued in the consolidated derivative actions in the Arizona District Court. On November 5, 2013, the matter was placed on the court's inactive calendar. The parties have jointly sought and obtained multiple requests to continue the stay in this action. Most recently, on March 1, 2017, the court entered an order continuing the stay until July 31, 2017.

The Company believes that plaintiffs in the derivative actions lack standing to pursue litigation on behalf of First Solar. The derivative actions are still in the initial stages and there has been no discovery. Accordingly, we are not in a position to assess whether any loss or adverse effect on our financial condition is probable or remote or to estimate the range of potential loss, if any.

Department of Labor Proceeding

In March 2015, the Wage and Hour Division of the U.S. Department of Labor (the "DOL") notified our wholly-owned subsidiary FSE of the DOL's findings following a labor standards compliance review under the Davis Bacon and Related Acts at the Agua Caliente project in southwestern Arizona. FSE served as the general contractor for the project. The DOL alleged that certain workers at the project were misclassified and, as a result of that misclassification, were not paid the required prevailing wage. In April 2017, we settled the compliance review with the DOL, and such settlement did not have a material effect on our condensed consolidated financial statements.

Table of Contents

14. Revenue from Contracts with Customers

The following table represents a disaggregation of revenue from contracts with customers for the three months ended March 31, 2017 and 2016 along with the reportable segment for each category (in thousands):

Category	Segment	Three Months Ended March 31, 2017	Three Months Ended March 31, 2016
Solar power systems	Both	$ 752,482	$ 523,305
Engineering, procurement, and construction services	Both	26,132	259,659
Solar modules	Components	71,138	55,268
Operations and maintenance services	Systems	24,696	23,990
Module plus	Both	3,307	11,028
Energy generation (1)	Systems	14,036	2,818
Net sales		$ 891,791	$ 876,068

(1) Substantially all energy generated and sold by our PV solar power systems is accounted for under ASC 840 consistent with the classification of the associated PPAs.

In our reportable segment financial disclosures, we include an allocation of net sales value for all solar modules manufactured by our components segment and installed in projects sold or built by our systems segment in the net sales of our components segment. Accordingly, the solar module portion of net sales of solar power systems, EPC services, and module plus arrangements is included in the net sales of our components segment along with solar module sales to third parties. The remaining portion of the net sales of solar power systems, EPC services, and module plus arrangements is included in the net sales of our systems segment along with revenue from operation and maintenance services and energy generation.

We generally recognize revenue for sales of solar power systems and/or EPC services over time using cost based input methods, in which significant judgment is required to evaluate assumptions including the amount of net contract revenues and the total estimated costs to determine our progress towards contract completion and to calculate the corresponding amount of revenue to recognize. If estimated total costs on any contract are greater than the net contract revenues, we recognize the entire estimated loss in the period the loss becomes known. The cumulative effect of revisions to estimates related to net contract revenues or costs to complete contracts are recorded in the period in which the revisions to estimates are identified and the amounts can be reasonably estimated.

Changes in estimates for sales of systems and EPC services occur for a variety of reasons, including but not limited to (i) construction plan accelerations or delays, (ii) module cost forecast changes, (iii) cost related change orders, or (iv) changes in other information used to estimate costs. Changes in estimates may have a material effect on our condensed consolidated statements of operations. The table below outlines the impact on revenue of net changes in estimated transaction prices and input costs for systems related sales contracts (both increases and decreases) for the three months ended March 31, 2017 and 2016 as well as the number of projects that comprise such changes. For purposes of the following table, we only include projects with changes in estimates that have a net impact on revenue of at least $1.0 million during the periods presented. Also included in the table is the aggregate net change in estimate as a percentage of the aggregate revenue for such projects.

	Three Months Ended March 31, 2017	Three Months Ended March 31, 2016
Number of projects	2	7
Decrease in revenue from net changes in transaction price (in thousands)	$ (3,328)	$ (3,720)
Increase in revenue from net changes in input cost estimates (in thousands)	1,176	47,949
Net (decrease) increase in revenue from net changes in estimates (in thousands)	$ (2,152)	$ 44,229
Net change in estimate as a percentage of aggregate revenue for associated projects	(0.9)%	1.3%

The following table reflects the changes in our contract assets, which we classify as "Accounts receivable, unbilled" or "Retainage," and our contract liabilities, which we classify as "Deferred revenue," for the three months ended March 31, 2017 (in thousands):

	March 31, 2017	December 31, 2016	Three Month Change	
Accounts receivable, unbilled	$ 64,995	$ 200,474		
Retainage	5,541	6,265		
Accounts receivable, unbilled and retainage	$ 70,536	$ 206,739	$ (136,203)	(66)%
Deferred revenue	$ 24,754	$ 308,704	$ (283,950)	(92)%

Accounts receivable, unbilled represents a contract asset for revenue that has been recognized in advance of billing the customer, which is common for long-term construction contracts. Billing requirements vary by contract but are generally structured around the completion of certain construction milestones. Some of our EPC contracts for systems we build may also contain retainage provisions. Retainage represents a contract asset for the portion of the contract price earned by us for work performed, but held for payment by the customer as a form of security until we reach certain construction milestones.

When we receive consideration, or such consideration is unconditionally due, from a customer prior to transferring goods or services to the customer under the terms of a sales contract, we record deferred revenue, which represents a contract liability. Such deferred revenue typically results from billings in excess of costs incurred on long-term construction contracts and advance payments received on sales of solar modules.

During the three months ended March 31, 2017 , our contract assets decreased by $136.2 million , primarily due to the final billings on the East Pecos project following the completion of substantially all construction activities. During the three months ended March 31, 2017 , our contract liabilities decreased by $284.0 million , primarily as a result of the completion of the sale of the Moapa project, on which we had received a significant portion of the proceeds in 2016, and revenue recognized from construction on the Helios project following the partial billing of such services in 2016.

During the three months ended March 31, 2017 and 2016 , we recognized revenue of $306.2 million and $74.8 million , respectively, that was included in the corresponding contract liability balance at the beginning of the periods.

The following table represents our remaining performance obligations as of March 31, 2017 for sales of solar power systems, including uncompleted sold projects, projects under sales contracts subject to conditions precedent, and EPC agreements for partner developed projects that we are constructing or expect to construct. We expect to recognize $11.7 million of revenue for such contracts through the later of the substantial completion or the closing dates of the projects.

Project/Location	Project Size in MW AC	Revenue Category	EPC Contract/Partner Developed Project	Expected Year Revenue Recognition Will Be Completed By	Percentage of Revenue Recognized
Helios, Honduras	25	EPC	Grupo Terra	2017	70%
Total	25				

As of March 31, 2017, we had entered into contracts with customers for the future sale of 1.6 GW DC of solar modules for an aggregate transaction price of $0.7 billion . We expect to recognize such amounts as revenue through 2019 as we transfer control of such modules to customers, which typically occurs upon shipment or delivery depending on the terms of the underlying contracts. As of March 31, 2017, we had also entered into long-term O&M contracts covering approximately 7 GW DC of utility-scale PV solar power systems. We expect to recognize $0.7 billion of revenue during the noncancelable term of these O&M contracts over a weighted-average period of 13.2 years .

As part of our adoption of ASU 2014-09 in the first quarter of 2017 , we have elected to use the practical expedient under ASC 606-10-65-1(f)(3), pursuant to which we have excluded disclosures of transaction prices allocated to remaining performance obligations and when we expect to recognize such revenue for all periods prior to the date of initial application of ASU 2014-09.

15. Share-Based Compensation

We measure share-based compensation cost at the grant date based on the fair value of the award and recognize this cost as share-based compensation expense over the required or estimated service period for awards that vest. The share-based compensation expense that we recognized in our condensed consolidated statements of operations for the three months ended March 31, 2017 and 2016 was as follows (in thousands):

	Three Months Ended March 31,	
	2017	**2016**
Cost of sales	$ 1,700	$ 2,355
Research and development	1,129	1,050
Selling, general and administrative	4,222	8,073
Total share-based compensation expense	$ 7,051	$ 11,478

The following table represents our share-based compensation expense by type of award for the three months ended March 31, 2017 and 2016 (in thousands):

	Three Months Ended March 31,	
	2017	**2016**
Restricted and performance stock units	$ 6,018	$ 11,216
Unrestricted stock	419	419
Stock purchase plan	360	346
	6,797	11,981
Net amount released from (absorbed into) inventory	254	(503)
Total share-based compensation expense	$ 7,051	$ 11,478

Share-based compensation expense capitalized in inventory was $2.5 million and $2.7 million as of March 31, 2017 and December 31, 2016 , respectively. As of March 31, 2017 , we had $61.4 million of unrecognized share-based compensation expense related to unvested restricted and performance stock units and rights under our stock purchase plan, which we expect to recognize as expense over a weighted-average period of approximately 2.0 years .

In February 2017, the compensation committee of our board of directors approved a new long-term incentive program for key executive officers and associates. The new program is intended to incentivize retention of our key executive talent, provide a smooth transition from our former key senior talent equity performance program, and align the interests of executive management and stockholders. Specifically, the new program consists of: (i) performance stock units to be earned over a three-year performance period beginning in March 2017 and (ii) stub-year grants of separate performance stock units to be earned over a two-year performance period also beginning in March 2017. Vesting of the performance stock units is contingent upon the achievement of certain performance objectives, including the relative attainment of target cost per watt and operating expense metrics, and the continued employment of program participants through the applicable vesting dates, except in limited cases, such as death, disability, or a change-in-control of First Solar.

16. Income Taxes

Our effective tax rate was 37.0% and 13.1% for the three months ended March 31, 2017 and 2016 , respectively. The increase in our effective tax rate was primarily driven by a lower percentage of profits earned in lower tax jurisdictions, higher discrete income tax expense related to share-based compensation, and an increase in the liability for an uncertain tax position associated with an ongoing tax examination in a foreign jurisdiction. Our provision for income taxes differed from the amount computed by applying the U.S. statutory federal income tax rate of 35.0% primarily due to losses in jurisdictions for which no tax benefits could be recorded and certain discrete tax expenses, partially offset by the benefit associated with certain other foreign income taxed at lower rates, including the beneficial impact of our Malaysian tax holiday.

Our Malaysian subsidiary has been granted a long-term tax holiday that expires in 2027. The tax holiday, which generally provides for a full exemption from Malaysian income tax, is conditional upon our continued compliance with meeting certain employment and investment thresholds, which we are currently in compliance with and expect to continue to comply with through the expiration of the tax holiday in 2027.

We account for uncertain tax positions pursuant to the recognition and measurement criteria under ASC 740. It is reasonably possible that an additional $11.0 million of uncertain tax positions will be recognized within the next 12 months due to the expiration of the statute of limitations associated with such positions.

In March 2017, we filed an election to classify our German subsidiaries as disregarded entities of First Solar, Inc. We expect to receive acceptance of such election by the U.S. federal income tax authority during the three months ended June 30, 2017. Upon receipt of such acceptance, we would record a benefit of up to $55 million through the tax provision to establish a deferred tax asset for excess foreign tax credits generated as a result of the associated election.

We are subject to audit by U.S. federal, state, local, and foreign tax authorities. We are currently under examination in India, Chile, Germany, and the state of California. We believe that adequate provisions have been made for any adjustments that may result from tax examinations. However, the outcome of tax audits cannot be predicted with certainty. If any issues addressed by our tax audits are not resolved in a manner consistent with our expectations, we could be required to adjust our provision for income taxes in the period such resolution occurs.

17. Net Income per Share

Basic net income per share is computed by dividing net income by the weighted-average number of common shares outstanding for the period. Diluted net income per share is computed giving effect to all potentially dilutive common shares, including restricted and performance stock units and stock purchase plan shares, unless there is a net loss for the period. In computing diluted net income per share, we utilize the treasury stock method.

The calculation of basic and diluted net income per share for the three months ended March 31, 2017 and 2016 was as follows (in thousands, except per share amounts):

	Three Months Ended March 31,	
	2017	**2016**
Basic net income per share		
Numerator:		
Net income	$ 9,129	$ 195,636
Denominator:		
Weighted-average common shares outstanding	104,103	101,853
Diluted net income per share		
Denominator:		
Weighted-average common shares outstanding	104,103	101,853
Effect of restricted and performance stock units and stock purchase plan shares	307	1,066
Weighted-average shares used in computing diluted net income per share	104,410	102,919
Net income per share:		
Basic	$ 0.09	$ 1.92
Diluted	$ 0.09	$ 1.90

The following table summarizes the potential shares of common stock that were excluded from the computation of diluted net income per share for the three months ended March 31, 2017 and 2016 as they would have had an anti-dilutive effect (in thousands):

	Three Months Ended March 31,	
	2017	**2016**
Anti-dilutive shares	337	1

18. Comprehensive Income and Accumulated Other Comprehensive Loss

Comprehensive income , which includes foreign currency translation adjustments, unrealized gains and losses on available-for-sale securities, and unrealized gains and losses on derivative instruments designated and qualifying as cash flow hedges, the impact of which has been excluded from net income and reflected as components of stockholders' equity, was as follows for the three months ended March 31, 2017 and 2016 (in thousands):

	Three Months Ended March 31, 2017	Three Months Ended March 31, 2016
Net income	$ 9,129	$ 195,636
Other comprehensive (loss) income, net of tax:		
Foreign currency translation adjustments	4,641	5,542
Unrealized (loss) gain on marketable securities and restricted investments, net of tax of $116 and $(2,296)	(4,744)	40,866
Less: reclassification for gains included in net income, net of tax of $0 and $2,904	(46)	(34,900)
Unrealized (loss) gain on marketable securities and restricted investments	(4,790)	5,966
Unrealized (loss) gain on derivative instruments for the period, net of tax of $813 and $10	(2,154)	7,170
Less: reclassification for gains included in net income, net of tax of $0 and $0	—	(7,064)
Unrealized (loss) gain on derivative instruments	(2,154)	106
Other comprehensive (loss) income, net of tax	(2,303)	11,614
Comprehensive income	$ 6,826	$ 207,250

The following tables reflect the changes in accumulated other comprehensive (loss) income, net of tax, for the three months ended March 31, 2017 and 2016 (in thousands):

	Foreign Currency Translation Adjustment	Unrealized Gain (Loss) on Marketable Securities and Restricted Investments	Unrealized Gain (Loss) on Derivative Instruments	Total
Balance as of December 31, 2016	$ (77,178)	$ 65,171	$ 2,100	$ (9,907)
Other comprehensive income (loss) before reclassifications	4,641	(4,744)	(2,154)	(2,257)
Amounts reclassified from accumulated other comprehensive loss	—	(46)	—	(46)
Net other comprehensive income (loss)	4,641	(4,790)	(2,154)	(2,303)
Balance as of March 31, 2017	$ (72,537)	$ 60,381	$ (54)	$ (12,210)

	Foreign Currency Translation Adjustment	Unrealized Gain (Loss) on Marketable Securities and Restricted Investments	Unrealized Gain (Loss) on Derivative Instruments	Total
Balance as of December 31, 2015	$ (69,769)	$ 86,884	$ (1,635)	$ 15,480
Other comprehensive income before reclassifications	5,542	40,866	7,170	53,578
Amounts reclassified from accumulated other comprehensive income	—	(34,900)	(7,064)	(41,964)
Net other comprehensive income	5,542	5,966	106	11,614
Balance as of March 31, 2016	$ (64,227)	$ 92,850	$ (1,529)	$ 27,094

Accumulated Other Comprehensive Income or Loss	Amount Reclassified for the Three Months Ended March 31, 2017	2016	Income Statement Line Item
Gains on marketable securities and restricted investments:			
	$ 46	$ 37,804	Other income, net
	—	(2,904)	Tax expense
	$ 46	$ 34,900	Total, net of tax
Gains and (losses) on derivative contracts:			
Cross currency swap contract	—	7,162	Foreign currency gain (loss), net
Interest rate and cross currency swap contracts	—	(98)	Interest expense, net
	—	7,064	Total before tax
	—	—	Tax expense
	$ —	$ 7,064	Total, net of tax

19. Segment Reporting

We operate our business in two segments. Our components segment involves the design, manufacture, and sale of CdTe solar modules, which convert sunlight into electricity. Third-party customers of our components segment include integrators and operators of PV solar power systems. Our second segment is our fully integrated systems business ("systems segment"), through which we provide complete turn-key PV solar power systems, or solar solutions, that draw upon our capabilities, which include (i) project development, (ii) EPC services, and (iii) O&M services. We may provide our full EPC services or any combination of individual products and services within our EPC capabilities depending upon the customer and market opportunity. All of our systems segment products and services are for PV solar power systems, which primarily use our solar modules, and we sell such products and services to utilities, independent power producers, commercial and industrial companies, and other system owners. Additionally within our systems segment, we may temporarily own and operate certain of our PV solar power systems for a period of time based on strategic opportunities.

In our reportable segment financial disclosures, we include an allocation of net sales value for all solar modules manufactured by our components segment and installed in projects sold or built by our systems segment in the net sales of our components segment. In the gross profit of our reportable segment disclosures, we include the corresponding cost of sales value for the solar modules installed in projects sold or built by our systems segment in the components segment. The cost of solar modules is comprised of the manufactured cost incurred by our components segment.

See Note 23. "Segment and Geographical Information" in our Annual Report on Form 10-K for the year ended December 31, 2016 for a complete discussion of our segment reporting.

Financial information about our reportable segments during the three months ended March 31, 2017 and 2016 was as follows (in thousands):

	Three Months Ended March 31, 2017			Three Months Ended March 31, 2016		
	Components	Systems	Total	Components	Systems	Total
Net sales	$ 300,242	$ 591,549	$ 891,791	$ 311,889	$ 564,179	$ 876,068
Gross profit	78,811	5,373	84,184	91,292	186,319	277,611
Depreciation and amortization expense	24,109	4,288	28,397	49,984	2,296	52,280

	March 31, 2017			December 31, 2016		
	Components	Systems	Total	Components	Systems	Total
Goodwill	$ 14,462	$ —	$ 14,462	$ 14,462	$ —	$ 14,462

Product Revenue

The following table sets forth the total amounts of solar module and solar power system net sales recognized for the three months ended March 31, 2017 and 2016 . For the purposes of the following table, (i) solar module revenue is composed of revenue from the sale of solar modules to third parties, which does not include any modules sold as part of our PV solar power systems, and (ii) solar power system revenue is composed of revenues from the sale of PV solar power systems and related products and services, including any modules installed in such systems and any revenue generated by such systems (in thousands):

	Three Months Ended March 31,	
	2017	2016
Solar module revenue	$ 71,138	$ 55,268
Solar power system revenue	820,653	820,800
Net sales	$ 891,791	$ 876,068

Item 2. ***Management's Discussion and Analysis of Financial Condition and Results of Operations***

Cautionary Statement Regarding Forward-Looking Statements

This Quarterly Report on Form 10-Q contains forward-looking statements within the meaning of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and the Securities Act of 1933, as amended (the "Securities Act"), which are subject to risks, uncertainties, and assumptions that are difficult to predict. All statements in this Quarterly Report on Form 10-Q, other than statements of historical fact, are forward-looking statements. These forward-looking statements are made pursuant to safe harbor provisions of the Private Securities Litigation Reform Act of 1995. The forward-looking statements include statements, among other things, concerning: effects resulting from certain module manufacturing changes and associated restructuring activities; our business strategy, including anticipated trends and developments in and management plans for our business and the markets in which we operate; future financial results, operating results, revenues, gross margin, operating expenses, products, projected costs (including estimated future module collection and recycling costs), warranties, solar module technology and cost reduction roadmaps, restructuring, product reliability, investments in unconsolidated affiliates, and capital expenditures; our ability to continue to reduce the cost per watt of our solar modules; our ability to expand manufacturing capacity worldwide; our ability to reduce the costs to construct photovoltaic ("PV") solar power systems; research and development ("R&D") programs and our ability to improve the conversion efficiency of our solar modules; sales and marketing initiatives; and competition. In some cases, you can identify these statements by forward-looking words, such as "estimate," "expect," "anticipate," "project," "plan," "intend," "seek," "believe," "forecast," "foresee," "likely," "may," "should," "goal," "target," "might," "will," "could," "predict," "continue," and the negative or plural of these words, and other comparable terminology. Forward-looking statements are only predictions based on our current expectations and our projections about future events. All forward-looking statements included in this Quarterly Report on Form 10-Q are based upon information available to us as of the filing date of this Quarterly Report on Form 10-Q. You should not place undue reliance on these forward-looking statements. We undertake no obligation to update any of these forward-looking statements for any reason. These forward-looking statements involve known and unknown risks, uncertainties, and other factors that may cause our actual results, levels of activity, performance, or achievements to differ materially from those expressed or implied by these statements. These factors include, but are not limited to, the matters discussed in Part I, Item 1A. "Risk Factors" of our Annual Report on Form 10-K for the year ended December 31, 2016 , elsewhere in this Quarterly Report on Form 10-Q, and our other reports filed with the Securities and Exchange Commission (the "SEC"). You should carefully consider the risks and uncertainties described under this section.

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our condensed consolidated financial statements and the related notes thereto included in this Quarterly Report on Form 10-Q. Unless expressly stated or the context otherwise requires, the terms "the Company," "we," "us," "our," and "First Solar" refer to First Solar, Inc. and its subsidiaries. When referring to our manufacturing capacity, total sales, and solar module sales, the unit of electricity in watts for megawatts ("MW") and gigawatts ("GW") is direct current ("DC") unless otherwise noted. When referring to our PV solar power systems, the unit of electricity in watts for MW and GW is alternating current ("AC") unless otherwise noted.

Executive Overview

We are a leading global provider of comprehensive PV solar energy solutions. We design, manufacture, and sell PV solar modules with an advanced thin-film semiconductor technology and also develop, design, construct, and sell PV solar power systems that primarily use the modules we manufacture. Additionally, we provide operations and maintenance ("O&M") services to system owners that use solar modules manufactured by us or by other third-party manufacturers. We have substantial, ongoing research and development ("R&D") efforts focused on module and system-level innovations. We are the world's largest thin-film PV solar module manufacturer and one of the world's largest PV solar module manufacturers. Our mission is to create enduring value by enabling a world powered by clean, affordable solar energy.

Certain highlights of our financial results and other key operational developments for three months ended March 31, 2017 include the following:

- Net sales for the three months ended March 31, 2017 were $0.9 billion , which was consistent with net sales for the same period in 2016 . Net sales from the sale of the Moapa project, the commencement of construction on the Helios project, an increase in the volume of modules sold to third parties, and higher energy generation revenue from PV solar power systems were offset by lower net sales from the completion of substantially all construction activities on the Desert Stateline, Taylor, Astoria, and Shams Ma'an projects in late 2016 and the completion of substantially all construction activities on the Silver State South and McCoy projects in the first half of 2016.

- Gross profit for the three months ended March 31, 2017 decreased 22.3 percentage points to 9.4% from 31.7% for the same period in 2016 . The decrease in gross profit was primarily due to the mix of lower gross profit projects sold and under construction during the period.

- As of March 31, 2017 , we had 26 installed production lines at our manufacturing facilities in Perrysburg, Ohio and Kulim, Malaysia. We produced 0.7 GW of solar modules during the three months ended March 31, 2017 , which represented a 13% decrease from the same period in 2016 . The decrease in production was driven by our previously announced plans to ramp down production of our Series 4 modules and continue the transition to Series 6 module manufacturing in 2017 and 2018. We expect to produce approximately 2.2 GW of solar modules during 2017 .

- During the three months ended March 31, 2017 , we ran our manufacturing facilities at 98% capacity utilization, which represented a 2 percentage point decrease from the same period in 2016 .

- The average conversion efficiency of our modules was 16.6% for the three months ended March 31, 2017 , which was an improvement of 0.4 percentage points from the three months ended March 31, 2016 .

Market Overview

The solar industry continues to be characterized by intense pricing competition, both at the module and system levels. In particular, module average selling prices in the United States and several other key markets have experienced an accelerated decline in recent months, and module average selling prices are expected to continue to decline to some degree in the short and medium terms according to market forecasts. In the aggregate, we believe manufacturers of solar modules and cells have significant installed production capacity, relative to global demand, and the ability for additional capacity expansion. We believe the solar industry may from time to time experience periods of structural imbalance between supply and demand (i.e., where production capacity exceeds global demand), and that such periods will put pressure on pricing. We believe the solar industry currently remains in such a period. Additionally, intense competition at the system level may result in an environment in which pricing falls rapidly, thereby further increasing demand for solar energy solutions but constraining the ability for project developers; engineering, procurement, and construction ("EPC") companies; and vertically-integrated solar companies such as First Solar to sustain meaningful and consistent profitability. In light of such market realities, we are executing our long term strategic plan, under which we are focusing on our competitive strengths. Such strengths include our advanced module and system technologies as well as our vertically-integrated business model that enables us to provide utility-scale PV solar energy solutions to key markets with current electricity needs.

Worldwide solar markets continue to develop, in part aided by demand elasticity resulting from declining industry average selling prices, both at the module and system level, which make solar power more affordable to new markets. We are developing, constructing, or operating multiple solar projects around the world, many of which are the largest or among the largest in their regions. We continue to execute on our advanced-stage utility-scale project pipeline and expect a substantial portion of our consolidated net sales, operating income, and cash flows through 2019 to be derived from these projects. We continue to advance the development and selling efforts for the other projects included in our advanced-stage utility-scale project pipeline, develop our early-to-mid stage project pipeline, and evaluate acquisitions of projects to expand our advanced-stage utility-scale project pipeline. See the tables under "Management's Discussion and Analysis of Financial Condition and Results of Operations – Systems Project Pipeline" for additional information about these and other projects within our systems business advanced-stage project pipeline.

Lower industry module and system pricing, while currently challenging for certain solar manufacturers (particularly manufacturers with higher cost structures), is expected to continue to contribute to global market diversification and volume elasticity. Over time, declining average selling prices are consistent with the erosion of one of the primary historical constraints to widespread solar market penetration, its affordability. In the near term, however, declining average selling prices are expected to adversely affect our results of operations relative to prior years. If competitors reduce pricing to levels below their costs, bid aggressively low prices for module sale agreements, EPC agreements, or power purchase agreements ("PPAs"), or are able to operate at minimal or negative operating margins for sustained periods of time, our results of operations could be further adversely affected. In certain markets in California and elsewhere, an oversupply imbalance at the grid level may further contribute to reduced short-to-medium term demand for new solar installations relative to prior years, lower PPA pricing, and lower margins on module and systems sales to such markets. We continue to mitigate these uncertainties in part by executing on our module technology improvements, including our transition to Series 6 module manufacturing, continuing the development of key markets, and implementing certain other cost reduction initiatives, including both manufacturing and balance of systems ("BoS") costs.

We face intense competition from manufacturers of crystalline silicon solar modules and other types of solar modules and PV solar power systems. Solar module manufacturers compete with one another on price and on several module value attributes, including conversion efficiency, energy yield, and reliability, and, with respect to PV solar power systems, net present value, return on equity, and levelized cost of electricity ("LCOE"), meaning the net present value of total life cycle costs of the system divided by the quantity of energy that is expected to be produced over the system's life. As noted above, competition on the basis of selling price per watt has intensified in recent months, resulting in sharp declines in module average selling prices in several key markets. In addition, we believe crystalline silicon cell and wafer manufacturers have begun transitioning from lower efficiency Back Surface Field ("BSF") multi-crystalline cells (the legacy technology against which we generally compete in our markets) to higher efficiency Passivated Emitter Rear Contact ("PERC") multi-crystalline and mono-crystalline cells at potentially competitive cost structures.

We believe we are among the lowest cost PV module manufacturers in the solar industry on a module cost per watt basis, based on publicly available information. This cost competitiveness is reflected in the price at which we sell our modules and fully integrated PV solar power systems and enables our systems to compete favorably. Our cost competitiveness is based in large part on our module conversion efficiency, proprietary manufacturing technology (which enables us to produce a cadmium telluride ("CdTe") module in less than 3.5 hours using a continuous and highly automated industrial manufacturing process, as opposed to a batch process), and our operational excellence. In addition, our CdTe modules use approximately 1-2% of the amount of the semiconductor material that is used to manufacture traditional crystalline silicon solar modules. The cost of polysilicon is a significant driver of the manufacturing cost of crystalline silicon solar modules, and the timing and rate of change in the cost of silicon feedstock and polysilicon could lead to changes in solar module pricing levels. Polysilicon costs have had periods of decline over the past several years, and polysilicon consumption per cell has been reduced through the adoption of diamond wafer saw technology, contributing to a decline in our relative manufacturing cost competitiveness over traditional crystalline silicon module manufacturers.

Given the smaller size (sometimes referred to as form factor) of our current Series 4 CdTe modules compared to certain types of crystalline silicon modules, we may incur higher labor and BoS costs associated with the construction of systems using our modules. Thus, to compete effectively on an LCOE basis, our Series 4 modules may need to maintain a certain cost advantage per watt compared to crystalline silicon-based modules with larger form factors. We recently introduced our next generation Series 6 module technology, which is expected to enable the production of modules with a larger form factor along with better product attributes and a lower manufacturing cost structure. Accordingly, the larger form factor of our Series 6 modules is expected to reduce the number of electrical connections and hardware required for system installation. The resulting labor and material savings are expected to represent a significant improvement compared to current technologies and a substantial reduction in total installed costs resulting in improved project returns as BoS costs represent a significant portion of the costs associated with the construction of a typical utility-scale system.

In terms of energy yield, in many climates, our CdTe modules provide a significant energy production advantage over most conventional crystalline silicon solar modules (including BSF and PERC technologies) of equivalent efficiency rating. For example, our CdTe solar modules provide a superior temperature coefficient, which results in stronger system performance in typical high insolation climates as the majority of a system's generation, on average, occurs when module temperatures are well above 25°C (standard test conditions). In addition, our CdTe modules provide a superior spectral response in humid environments where atmospheric moisture alters the solar spectrum relative to laboratory standards. Our CdTe solar modules also provide a better shading response than conventional crystalline silicon solar modules, which may lose up to three times as much power as CdTe solar modules when shading occurs. As a result of these and other factors, our PV solar power systems typically produce more annual energy in real world field conditions than competing systems with the same nameplate capacity.

While our modules and PV solar power systems are generally competitive in cost, reliability, and performance attributes, there can be no guarantee such competitiveness will continue to exist in the future to the same extent or at all. Any declines in the competitiveness of our products could result in additional margin compression, further declines in the average selling prices of our modules and systems, erosion in our market share for modules and systems, decreases in the rate of net sales growth, and/or declines in overall net sales. We continue to focus on enhancing the competitiveness of our solar modules and PV solar power systems by accelerating progress along our module technology and cost reduction roadmaps, continuing to make technological advances at the system level, using innovative installation techniques and know-how, and leveraging volume procurement around standardized hardware platforms.

Certain Trends and Uncertainties

We believe that our operations may be favorably or unfavorably impacted by the following trends and uncertainties that may affect our financial condition and results of operations. See Part I, Item 1A. "Risk Factors" of our Annual Report on Form 10-K for the year ended December 31, 2016 filed with the SEC on February 22, 2017 for a discussion of other risks (the "Risk Factors") that may affect our financial condition and results of operations.

Long Term Strategic Plan

Our long term strategic plan is a long-term roadmap to achieve our technology, growth, and cost leadership objectives. In executing our long term strategic plan, we are focusing on providing utility-scale PV solar energy solutions using our modules in key geographic markets that we believe have a compelling need for mass-scale PV electricity, including markets throughout the Americas, the Asia-Pacific region, and the Middle East. As part of our long term strategic plan, we are focusing on opportunities in which our PV solar energy solutions can compete directly with fossil fuel offerings on an LCOE or similar basis, or complement such fossil fuel electricity offerings. Execution of the long term strategic plan entails a prioritization of market opportunities worldwide relative to our core strengths and a corresponding allocation of resources around the globe. This prioritization involves a focus on our core module and utility-scale offerings and exists within a current market environment that includes rooftop and distributed generation solar, particularly in the United States. While it is unclear how rooftop and distributed generation solar might impact our core utility-scale offerings in the next several years, we believe that utility-scale solar will continue to be a compelling solar offering for companies with technology and cost leadership and will continue to represent an increasing portion of the overall electricity generation mix.

We are closely evaluating and managing the appropriate level of resources required as we pursue the most advantageous and cost effective projects and partnerships in our target markets. We have dedicated, and intend to continue to dedicate, significant capital and human resources to reduce the total installed cost of PV solar energy, to optimize the design and logistics around our PV solar energy solutions, and to ensure that our solutions integrate well into the overall electricity ecosystem of each specific market. We expect that, over time, an increasing portion of our consolidated net sales, operating income, and cash flows may come from solar offerings in the key geographic markets described above as we execute on our long term strategic plan. The timing, execution, and financial impacts of our long term strategic plan are subject to risks and uncertainties, as described in the Risk Factors. We are focusing our resources in those markets and energy applications in which solar power can be a least-cost, best-fit energy solution, particularly in regions with high solar resources, significant current or projected electricity demand, and/or relatively high existing electricity prices. As part of these efforts, we continue to optimize resources globally, including business development, sales personnel, and other supporting professional staff in target markets.

Joint ventures or other strategic arrangements with partners are a part of our long term strategic plan, and we generally use such arrangements to expedite our penetration of various key markets and establish relationships with potential customers. We also enter into joint ventures or strategic arrangements with customers or other entities to maximize the value of particular projects. Some of these arrangements involve and are expected in the future to involve significant investments or other allocations of capital. We continue to develop relationships with customers in these strategic markets with a view to creating opportunities for utility-scale PV solar power systems. We sell such systems directly to end customers, including utilities, independent power producers, commercial and industrial companies, and other system owners. Depending on the market opportunity, our sales offerings may range from module-only sales, to module sales with a range of development, EPC services, and other solutions, to full turn-key PV solar power system sales. We expect these offerings to continue to evolve over time as we work with our customers to optimize how our PV solar energy solutions can best meet our customers' energy and economic needs.

In order to create or maintain a market position in certain strategically targeted markets, our offerings from time to time may need to be competitively priced at levels associated with minimal gross profit margins, which may adversely affect our results of operations. We expect the profitability associated with our various sales offerings to vary from one another over time, and possibly vary from our internal long-range profitability expectations and targets, depending on the market opportunity and the relative competitiveness of our offerings compared with other energy solutions, fossil fuel-based or otherwise, that are available to potential customers. In addition, as we execute on our long term strategic plan, we will continue to monitor and adapt to any changing dynamics in the market set of potential buyers of solar project assets. Market environments with few potential project buyers and a higher cost of capital would generally exert downward pressure on the potential revenue from the uncontracted solar project assets we are developing, whereas, conversely, market environments with many potential project buyers and a lower cost of capital would likely have a favorable impact on the potential revenue from such uncontracted solar project assets.

We expect to use our working capital, project financing arrangements, or availability under the senior secured credit facility provided under our amended and restated credit agreement (the "Revolving Credit Facility") to finance the construction of certain PV solar power systems for strategic purposes or to maximize the value of such systems at the time of sale. From time to time, we may temporarily own and operate certain PV solar power systems, often with the intention to sell at a later date. We may also elect to construct and temporarily retain ownership interests in systems for which there is no PPA with an off-taker, such as a utility, but rather an intent to sell the electricity produced by the system on an open contract basis until the system is sold. Additionally, our joint ventures and other business arrangements with strategic partners have and may in the future result in us temporarily retaining a noncontrolling ownership interest in the underlying systems projects we develop, supply modules to, or construct potentially for a period of up to several years. Such business arrangements could become increasingly important to our competitive profile in markets globally, including North America. In each of the above mentioned examples, we may retain such ownership interests in a consolidated or unconsolidated separate entity.

We continually evaluate forecasted global demand, competition, and our addressable market, and seek to effectively balance manufacturing capacity with market demand and the nature and extent of our competition. To the extent we make investments to add or otherwise modify our manufacturing capacity in response to market demand and competition, such investments would require significant internal and possibly external sources of liquidity and would be subject to certain risks and uncertainties described in the Risk Factors, including those described under the headings "Our future success depends on our ability to effectively balance manufacturing production with market demand, convert existing production facilities to support new product lines, such as our transition to Series 6 module manufacturing, and, when necessary, continue to build new manufacturing plants over time in response to such demand and add production lines in a cost-effective manner, all of which are subject to risks and uncertainties" and "If any future production lines are not built in line with our committed schedules it may impair any future growth plans. If any future production lines do not achieve operating metrics similar to our existing production lines, our solar modules could perform below expectations and cause us to lose customers."

8point3 Energy Partners LP

In June 2015, 8point3 Energy Partners LP (the "Partnership"), a limited partnership formed by First Solar and SunPower Corporation (the "Sponsors"), completed its initial public offering (the "IPO"). As part of the IPO, we contributed interests in various projects to a subsidiary of the Partnership in exchange for an ownership interest in the entity. Since the formation of the Partnership, we and SunPower have, from time to time, continued to sell interests in solar projects to the Partnership. The Partnership owns and operates a portfolio of solar energy generation projects and is expected to acquire additional interests in projects from the Sponsors. In April 2017, we announced that we were reviewing alternatives for the sale of our interests in the Partnership. Given the broader economic factors currently impacting the yieldco sector in general, including yieldco equity valuations generally, the timing and execution of project sales to the Partnership are subject to market conditions. For additional information, see the Risk Factors in our Annual Report on Form 10-K for the year ended December 31, 2016 and "Note 11. Investments in Unconsolidated Affiliates and Joint Ventures – 8point3 Energy Partners LP" of our condensed consolidated financial statements included in this Quarterly Report on Form 10-Q.

Construction of Utility-Scale PV Solar Power Systems

We continue to execute on our advanced-stage utility-scale project pipeline and expect a substantial portion of our consolidated net sales, operating income, and cash flows through 2019 to be derived from several large projects in this pipeline, including the following contracted projects: the 280 MW California Flats project, located in Monterey County, California; the 150 MW Rosamond project located in Kern County, California; and the 150 MW Sun Streams project, located in Maricopa County, Arizona. Please see the tables under "Management's Discussion and Analysis of Financial Condition and Results of Operations – Systems Project Pipeline" for additional information about these and other projects within our systems business advanced-stage project pipeline. The construction progress of these projects is subject to risks and delays as described in the Risk Factors. Expected revenue from projects without a PPA, for which electricity will be sold on an open contract basis, may be subject to greater variability and uncertainty based on market factors compared to projects with a PPA.

Systems Project Pipeline

The following tables summarize, as of May 4, 2017 , our approximately 1.8 GW systems business advanced-stage project pipeline. The actual volume of modules installed in our projects will be greater than the project size in MW AC as module volumes required for a project are based upon MW DC, which will be greater than the MW AC size pursuant to a DC-AC ratio typically ranging from 1.2 to 1.3 . Such ratio varies across different projects due to various system design factors. Projects are removed from our advanced-stage project pipeline tables below once we have substantially completed construction and after substantially all revenue has been recognized. Projects, or portions of projects, may also be removed from the tables below in the event an EPC-contracted or partner-developed project does not obtain permitting or financing, an unsold or uncontracted project is not sold or contracted due to the changing economics of the project or other factors, or we decide to temporarily own and operate, or retain interests in, such projects based on strategic opportunities or market factors.

Projects Sold/Under Contract
(Includes uncompleted sold projects, projects under sales contracts subject to conditions precedent, and EPC agreements, including partner developed projects that we will be or are constructing.)

					As of March 31, 2017
Project/Location	**Project Size in MW AC**	**PPA Contracted Partner**	**EPC Contract/Partner Developed Project**	**Expected Year Revenue Recognition Will Be Completed By**	**Percentage of Revenue Recognized**
Helios, Honduras	25	ENEE (1)	Grupo Terra	2017	70%
Total	25				

Table of Contents

Projects with Executed PPA Not Sold/Not Contracted

Project/Location	Project Size in MW AC	Fully Permitted	PPA Contracted Partner	Expected or Actual Substantial Completion Year	Percentage Complete as of March 31, 2017
California Flats, California	280	No	PG&E / Apple Inc. (2)	2018	57%
India (multiple locations)	250	No	(3)	2016/2017	79%
Rosamond, California	150	Yes	SCE	2018	15%
Sun Streams, Arizona	150	Yes	SCE	2019	5%
Luz del Norte, Chile	141	Yes	(4)	2016	100%
American Kings Solar, California	126	No	SCE	2020	16%
Willow Springs, California	100	Yes	SCE	2018	17%
Sunshine Valley, Nevada	100	Yes	SCE	2019	3%
Switch Station 1, Nevada	100	Yes	Nevada Power Company	2017	93%
Switch Station 2, Nevada	79	Yes	Nevada Power Company / Sierra Pacific Power Company	2017	28%
Ishikawa, Japan	59	Yes	Hokuriku Electric Power Company	2018	25%
Manildra, Australia	49	Yes	EnergyAustralia	2018	13%
Japan (multiple locations)	41	No	Tokyo Electric Power Company	2019/2020	9%
Little Bear, California	40	No	Marin Clean Energy (5)	2020	5%
Miyagi, Japan	40	No	Tohoku Electric Power Company	2018/2019	10%
Cuyama, California	40	Yes	PG&E	2017	32%
Total	1,745				

(1) ENEE is defined as Empresa Nacional de Energía Eléctrica

(2) PG&E 150 MW AC and Apple Energy, LLC 130 MW AC

(3) Southern Power Distribution Company of Telangana State Ltd – 110 MW AC; Andhra Pradesh Southern Power Distribution Company Ltd – 80 MW AC; Gulbarga Electricity Supply Co. – 20 MW AC; Bengaluru Electricity Supply Co. – 20 MW AC; and Chamundeshwari Electricity Supply Co. – 20 MW AC

(4) PPAs executed for approximately 70 MW AC of capacity; remaining electricity to be sold on an open contract basis

(5) Expandable to 160 MW AC, subject to satisfaction of certain PPA contract conditions

Results of Operations

The following table sets forth our condensed consolidated statements of operations as a percentage of net sales for the three months ended March 31, 2017 and 2016 :

	Three Months Ended March 31,	
	2017	2016
Net sales	100.0 %	100.0 %
Cost of sales	90.6 %	68.3 %
Gross profit	9.4 %	31.7 %
Research and development	2.6 %	3.4 %
Selling, general and administrative	5.4 %	7.7 %
Production start-up	0.1 %	— %
Restructuring and asset impairments	2.2 %	— %
Operating (loss) income	(0.9)%	20.5 %
Foreign currency gain (loss), net	— %	(0.4)%
Interest income	0.7 %	0.7 %
Interest expense, net	(1.0)%	(0.5)%
Other income, net	2.9 %	4.1 %
Income tax expense	(0.6)%	(3.2)%
Equity in earnings of unconsolidated affiliates, net of tax	(0.1)%	1.1 %
Net income	1.0 %	22.3 %

Segment Overview

We operate our business in two segments. Our components segment involves the design, manufacture, and sale of CdTe solar modules, which convert sunlight into electricity, and our systems segment includes the development, construction, operation, and maintenance of PV solar power systems, which primarily use our solar modules. See Note 19. “Segment Reporting” to our condensed consolidated financial statements included with this Quarterly Report on Form 10-Q for more information. See also Item 2. “Management’s Discussion and Analysis of Financial Condition and Results of Operations – Systems Project Pipeline” for a description of the system projects in our advanced-stage project pipeline.

Product Revenue

The following table sets forth the total amounts of solar module and solar power system net sales for the three months ended March 31, 2017 and 2016 . For the purpose of the following table, (i) solar module revenue is composed of revenue from the sale of solar modules to third parties, which does not include any modules sold as part of our PV solar power systems, and (ii) solar power system revenue is composed of revenue from the sale of PV solar power systems and related products and services, including any modules installed in such systems and any revenue generated by such systems (in thousands):

	Three Months Ended March 31,		Three Month Change	
	2017	2016		
Solar module revenue	$ 71,138	$ 55,268	$ 15,870	29 %
Solar power system revenue	820,653	820,800	(147)	— %
Net sales	$ 891,791	$ 876,068	$ 15,723	2 %

Solar module revenue to third parties increased $15.9 million for the three months ended March 31, 2017 compared to the three months ended March 31, 2016 primarily as a result of a 66% increase in the volume of watts sold, partially offset by a 22% decrease in the average selling price per watt. Solar power system revenue decreased $0.1 million for the three months ended March 31, 2017 compared to the three months ended March 31, 2016 primarily due to the completion of substantially all construction activities on the Desert Stateline, Taylor, Astoria, and Shams Ma’an projects in late 2016 and the completion of substantially all construction activities on the Silver State South and McCoy projects in the first half of 2016, partially offset by the sale of the Moapa project, the commencement of construction on the Helios project in late 2016, and higher energy generation revenue from PV solar power systems.

Three Months Ended March 31, 2017 and 2016

Net sales

Components Business

We generally price and sell our solar modules per watt of nameplate power. During the three months ended March 31, 2017 , a significant portion of net sales for our components business included modules installed in our PV solar power systems described below under "Net Sales – Systems Business." Other than the modules included in our systems, we sold the majority of our solar modules to integrators and operators of systems in Turkey, India, and Brazil.

From time to time, we enter into module sales agreements with customers worldwide for specific projects or volumes of modules. Such agreements are generally short-term in nature. During the three months ended March 31, 2017 and 2016 , substantially all of our components business net sales, excluding modules installed in our systems, were denominated in U.S. dollars.

We recognize revenue for module sales at a point in time following the transfer of control of such products to the customer, which typically occurs upon shipment or delivery depending on the terms of the underlying contracts, and our customers generally do not have extended payment terms or rights of return. The revenue recognition policies for module sales are further described in Note 2. "Summary of Significant Accounting Policies" to our condensed consolidated financial statements included in this Quarterly Report on Form 10-Q.

Systems Business

Through our fully integrated systems business, we provide complete turn-key PV solar power systems, or solar solutions, which may include project development, EPC services, and O&M services. Additionally, we may temporarily own and operate, or retain interests in, certain of our PV solar power systems, which are also included within our systems business. We typically recognize revenue for sales of solar power systems using cost based input methods, which result in revenue being recognized as work is performed based on the relationship between actual costs incurred compared to the total estimated costs for a given contract. We may also recognize revenue for the sale of a system after the project has been completed due to the timing of when we enter into the associated sales contract with the customer. The revenue recognition policies for our systems business are further described in Note 2. "Summary of Significant Accounting Policies" to our condensed consolidated financial statements included in this Quarterly Report on Form 10-Q.

The following table shows net sales by reportable segment for the three months ended March 31, 2017 and 2016 :

	Three Months Ended March 31,			
(Dollars in thousands)	2017	2016	Three Month Change	
Components	$ 300,242	$ 311,889	$ (11,647)	(4)%
Systems	591,549	564,179	27,370	5 %
Net sales	$ 891,791	$ 876,068	$ 15,723	2 %

Net sales from our components segment, which includes solar modules used in our systems projects, decreased $11.6 million for the three months ended March 31, 2017 compared to the three months ended March 31, 2016 primarily due to an 11% decrease in the average selling price per watt, partially offset by an 8% increase in the volume of watts sold. Net sales from our systems segment, which excludes solar modules used in our systems projects, increased by $27.4 million for the three months ended March 31, 2017 compared to the three months ended March 31, 2016 primarily due to the sale of the Moapa project, the commencement of construction on the Helios project in late 2016, and higher energy generation revenue from PV solar power systems. This increase in revenue was partially offset by the completion of substantially all construction activities on the Desert Stateline, Taylor, Astoria, and Shams Ma'an projects in late 2016 and the completion of substantially all construction activities on the Silver State South and McCoy projects in the first half of 2016.

Cost of sales

Components Business

Our cost of sales includes the cost of raw materials and components for manufacturing solar modules, such as glass, transparent conductive coatings, CdTe and other thin-film semiconductors, laminate materials, connector assemblies, edge seal materials, and other materials and components. In addition, our cost of sales includes direct labor for the manufacturing of solar modules and manufacturing overhead such as engineering, equipment maintenance, environmental health and safety, quality and production control, information technology, and procurement costs. Our cost of sales also includes depreciation of manufacturing plant and equipment, facility-related expenses, and costs associated with shipping, warranties, and our solar module collection and recycling obligation (excluding accretion).

We include the sale of solar modules manufactured by our components business and used by our systems business within net sales of our components business. Therefore, the related cost of sales is also included within our components business.

Systems Business

For our systems business, project-related costs include development costs (legal, consulting, transmission upgrade, interconnection, permitting, and other similar costs), standard EPC costs (consisting primarily of BoS costs for inverters, electrical and mounting hardware, project management and engineering costs, and construction labor costs), and site specific costs.

The following table shows cost of sales by reportable segment for the three months ended March 31, 2017 and 2016 :

	Three Months Ended March 31,			
(Dollars in thousands)	2017	2016	Three Month Change	
Components	$ 221,431	$ 220,597	$ 834	—%
Systems	586,176	377,860	208,316	55%
Total cost of sales	$ 807,607	$ 598,457	$ 209,150	35%
% of net sales	90.6%	68.3%		

Our cost of sales increased $209.2 million , or 35% , and increased 22.3 percentage points as a percent of net sales for the three months ended March 31, 2017 compared to the three months ended March 31, 2016 . The increase in cost of sales was primarily driven by a $208.3 million increase in our systems segment cost of sales primarily due to a mix of lower gross profit system projects sold or under construction during the period. This net increase was also affected by a $0.8 million increase in our components segment cost of sales primarily as a result of higher costs of $17.9 million from the increased volume of modules sold directly to third parties, partially offset by continued reductions in the cost per watt of our solar modules, which decreased cost of sales by $13.0 million .

Gross profit

Gross profit is affected by numerous factors, including the selling prices of our modules and systems, our manufacturing costs, BoS costs, project development costs, the capacity utilization of our manufacturing facilities, and foreign exchange rates. Gross profit is also affected by the mix of net sales generated by our components and systems businesses.

The following table shows gross profit for the three months ended March 31, 2017 and 2016 :

	Three Months Ended March 31,			
(Dollars in thousands)	2017	2016	Three Month Change	
Gross profit	$ 84,184	$ 277,611	$ (193,427)	(70)%
% of net sales	9.4%	31.7%		

Gross profit decreased 22.3 percentage points to 9.4% during the three months ended March 31, 2017 from 31.7% during the three months ended March 31, 2016 primarily as a result of the mix of lower gross profit projects sold and under construction during the period.

Research and development

Research and development expense consists primarily of salaries and personnel-related costs; the cost of products, materials, and outside services used in our process and product R&D activities; and depreciation and amortization expense associated with R&D specific facilities and equipment. We maintain a number of programs and activities to improve our technology and processes in order to enhance the performance and reduce the costs of our solar modules and PV solar power systems using our modules.

The following table shows research and development expense for the three months ended March 31, 2017 and 2016 :

	Three Months Ended March 31,			
(Dollars in thousands)	2017	2016	Three Month Change	
Research and development	$ 22,799	$ 30,187	$ (7,388)	(24)%
% of net sales	2.6%	3.4%		

The decrease in research and development expense for the three months ended March 31, 2017 compared to the three months ended March 31, 2016 was primarily due to reductions in our R&D headcount and employee compensation expense resulting from the restructuring activities further described in Note 4. "Restructuring and Asset Impairments" to our condensed consolidated financial statements included in this Quarterly Report on Form 10-Q. During the three months ended March 31, 2017 , the average conversion efficiency of our CdTe solar modules produced was 16.6% compared to 16.2% for the three months ended March 31, 2016 .

Selling, general and administrative

Selling, general and administrative expense consists primarily of salaries and other personnel-related costs, professional fees, insurance costs, travel expenses, and other business development and selling expenses.

The following table shows selling, general and administrative expense for the three months ended March 31, 2017 and 2016 :

	Three Months Ended March 31,			
(Dollars in thousands)	2017	2016	Three Month Change	
Selling, general and administrative	$ 48,199	$ 67,503	$ (19,304)	(29)%
% of net sales	5.4%	7.7%		

Our selling, general and administrative expense for the three months ended March 31, 2017 decreased compared to the three months ended March 31, 2016 . This decrease was primarily driven by lower employee compensation expense due to the various restructuring activities described in Note 4. "Restructuring and Asset Impairments" to our condensed consolidated financial statements included in this Quarterly Report on Form 10-Q and lower professional fees.

Production start-up

Production start-up expense consists primarily of employee compensation and other costs associated with operating a production line before it has been qualified for full production, including the cost of raw materials for solar modules run through the production line during the qualification phase and applicable facility related costs. Costs related to equipment upgrades and implementation of manufacturing process improvements are also included in production start-up expense as well as costs related to the selection of a new site, related legal and regulatory costs, and costs to maintain our plant replication program to the extent we cannot capitalize these expenditures. In general, we expect production start-up expense per production line to be higher when we build an entirely new manufacturing facility compared with the addition of new production lines at an existing manufacturing facility, primarily due to the additional infrastructure investment required when building an entirely new facility.

The following table shows production start-up expense for the three months ended March 31, 2017 and 2016 :

	Three Months Ended March 31,			
(Dollars in thousands)	2017	2016	Three Month Change	
Production start-up	$ 1,150	$ —	$ 1,150	100%
% of net sales	0.1%	—%		

During the three months ended March 31, 2017 , we incurred certain production start-up expense for the transition to Series 6 module manufacturing at our facility in Perrysburg, Ohio.

Restructuring and asset impairments

Restructuring and asset impairments includes those expenses incurred related to material restructuring initiatives and includes any associated asset impairments, costs for employee termination benefits, costs for contract terminations and penalties, and other restructuring related costs. Such restructuring initiatives are intended to align the organization with then current business conditions and to reduce costs.

The following table shows restructuring and asset impairments for the three months ended March 31, 2017 and 2016 :

	Three Months Ended March 31,			
(Dollars in thousands)	2017	2016	Three Month Change	
Restructuring and asset impairments	$ 20,031	$ —	$ 20,031	100%
% of net sales	2.2%	—%		

During the three months ended March 31, 2017 we incurred $20.0 million of restructuring and asset impairment charges associated with our transition to Series 6 module manufacturing. Such charges included (i) $10.2 million of charges, primarily related to net losses on the disposition of previously impaired Series 4 manufacturing equipment and certain Series 5 manufacturing equipment considered abandoned for accounting purposes, (ii) $6.2 million of severance benefits to terminated employees, and (iii) $3.6 million of net miscellaneous charges, primarily related to contract terminations, the write-off of operating supplies, and other Series 4 manufacturing exit costs. See Note 4. “Restructuring and Asset Impairments” to our condensed consolidated financial statements included in this Quarterly Report on Form 10-Q for additional information. We expect to incur up to $50 million of additional charges in 2017 as we continue the transition to Series 6 module manufacturing.

Foreign currency gain (loss), net

Foreign currency gain (loss), net consists of the net effect of gains and losses resulting from holding assets and liabilities and conducting transactions denominated in currencies other than our subsidiaries’ functional currencies.

The following table shows foreign currency gain (loss), net for the three months ended March 31, 2017 and 2016 :

	Three Months Ended March 31,			
(Dollars in thousands)	2017	2016	Three Month Change	
Foreign currency gain (loss), net	$ 246	$ (3,240)	$ 3,486	(108)%

Foreign currency gain for the three months ended March 31, 2017 increased compared to the three months ended March 31, 2016 primarily due to the weakening of the U.S. dollar relative to certain foreign currencies as well as differences between our economic hedge positions and the underlying exposures.

Interest income

Interest income is earned on our cash, cash equivalents, marketable securities, and restricted cash and investments. Interest income also includes interest earned from notes receivable and late customer payments.

The following table shows interest income for the three months ended March 31, 2017 and 2016 :

	Three Months Ended March 31,			
(Dollars in thousands)	**2017**	**2016**	**Three Month Change**	
Interest income	$ 6,417	$ 6,406	$ 11	—%

Interest income for the three months ended March 31, 2017 was consistent with the three months ended March 31, 2016 .

Interest expense, net

Interest expense is primarily comprised of interest incurred on long-term debt, settlements of interest rate swap contracts, and changes in the fair value of interest rate swap contracts that do not qualify for hedge accounting in accordance with ASC 815. We capitalize interest expense on our project assets or property, plant and equipment when such costs qualify for interest capitalization, which reduces the amount of net interest expense reported in any given period.

The following table shows interest expense, net for the three months ended March 31, 2017 and 2016 :

	Three Months Ended March 31,			
(Dollars in thousands)	**2017**	**2016**	**Three Month Change**	
Interest expense, net	$ (9,169)	$ (4,642)	$ (4,527)	98%

Interest expense, net of amounts capitalized, for the three months ended March 31, 2017 increased compared to the three months ended March 31, 2016 primarily due to changes in the fair value of interest rate swap contracts that do not qualify for hedge accounting and higher levels of project specific debt financings, partially offset by lower interest expense associated with certain Malaysian credit facilities that were fully repaid in the second half of 2016.

Other income, net

Other income, net is primarily comprised of miscellaneous items and realized gains and losses on the sale of marketable securities and cost method investments.

The following table shows other income, net for the three months ended March 31, 2017 and 2016 :

	Three Months Ended March 31,			
(Dollars in thousands)	**2017**	**2016**	**Three Month Change**	
Other income, net	$ 25,861	$ 35,553	$ (9,692)	27%

Other income, net decreased for the three months ended March 31, 2017 compared to the three months ended March 31, 2016 primarily due to realized gains of $37.8 million during the three months ended March 31, 2016 from the sale of certain restricted investments as part of an effort to align the currencies of the investments with those of the corresponding collection and recycling liabilities, partially offset by a $26.8 million settlement from the resolution of an outstanding matter with a former customer during the three months ended March 31, 2017.

Income tax expense

Income tax expense or benefit, deferred tax assets and liabilities, and liabilities for unrecognized tax benefits reflect our best estimate of current and future taxes to be paid. We are subject to income taxes in both the United States and numerous foreign jurisdictions in which we operate; principally Australia, India, and Malaysia. Significant judgments and estimates are required in determining our consolidated income tax expense. The statutory federal corporate income tax rate in the United States is 35.0% , while the tax rates in Australia, India, and Malaysia are 30.0% , 34.6% , and 24.0% , respectively. In Malaysia, we have been granted a long-term tax holiday, scheduled to expire in 2027 , pursuant to which substantially all of our income earned in Malaysia is exempt from income tax.

The following table shows consolidated income tax expense for the three months ended March 31, 2017 and 2016 :

	Three Months Ended March 31,			
(Dollars in thousands)	2017	2016	Three Month Change	
Income tax expense	$ (5,679)	$ (28,031)	$ 22,352	80%
Effective tax rate	37.0%	13.1%		

Our tax rate is affected by recurring items, such as tax rates in foreign jurisdictions and the relative amounts of income we earn in those jurisdictions. The rate is also affected by discrete items that may occur in any given period, but are not consistent from period to period. Income tax expense decreased by $22.4 million during the three months ended March 31, 2017 compared to the three months ended March 31, 2016 primarily due to a decrease in pretax income, partially offset by higher discrete income tax expense related to share-based compensation.

Equity in earnings of unconsolidated affiliates, net of tax

Equity in earnings of unconsolidated affiliates, net of tax represents our proportionate share of the earnings or losses of unconsolidated affiliates with whom we have made equity method investments.

The following table shows equity in earnings of unconsolidated affiliates, net of tax for the three months ended March 31, 2017 and 2016 :

	Three Months Ended March 31,			
(Dollars in thousands)	2017	2016	Three Month Change	
Equity in earnings of unconsolidated affiliates, net of tax	$ (552)	$ 9,669	$ (10,221)	(106)%

Equity in earnings of unconsolidated affiliates, net of tax for the three months ended March 31, 2017 decreased compared to the three months ended March 31, 2016 primarily due to lower equity in earnings from our investment in OpCo.

Critical Accounting Policies and Estimates

In preparing our condensed consolidated financial statements in conformity with accounting principles generally accepted in the United States, we make estimates and assumptions that affect the amounts of reported assets, liabilities, revenues, and expenses, as well as the disclosure of contingent liabilities. Some of our accounting policies require the application of significant judgment in the selection of the appropriate assumptions for making these estimates. By their nature, these judgments are subject to an inherent degree of uncertainty. We base our judgments and estimates on our historical experience, our forecasts, and other available information as appropriate. We believe that the judgments and estimates involved in determining inputs used to recognize revenue over time, accrued solar module collection and recycling, product warranties, performance guarantees, indemnifications, accounting for income taxes, long-lived asset impairments, and testing goodwill for impairment have the greatest potential impact on our condensed consolidated financial statements. The actual results experienced by us may differ materially and adversely from our estimates. To the extent there are material differences between our estimates and the actual results, our future results of operations will be affected.

For a description of our critical accounting policies and estimates affecting revenue recognition, see Note 2. “Summary of Significant Accounting Policies” to our condensed consolidated financial statements included in this Quarterly Report on Form 10-Q. For a description of other critical accounting policies that affect our more significant judgments and estimates used in the preparation of our condensed consolidated financial statements, refer to our Annual Report on Form 10-K for the year ended December 31, 2016 filed with the SEC. With the exception of the changes to our revenue recognition policies referenced above, there have been no material changes to our critical accounting policies during the three months ended March 31, 2017 .

Recent Accounting Pronouncements

See Note 3. “Recent Accounting Pronouncements” to our condensed consolidated financial statements included in this Quarterly Report on Form 10-Q for a summary of recent accounting pronouncements.

Liquidity and Capital Resources

As of March 31, 2017 , we believe that our cash, marketable securities, cash flows from operating activities, advanced-stage project pipeline, availability under our Revolving Credit Facility considering minimum liquidity covenant requirements, and access to the capital markets will be sufficient to meet our working capital, systems project investment, and capital expenditure needs for at least the next 12 months. We monitor our working capital to ensure we have adequate liquidity, both domestically and internationally.

We intend to maintain appropriate debt levels based upon cash flow expectations, our overall cost of capital, and expected cash requirements for operations, capital expenditures, and strategic discretionary spending. In the future, we may also engage in additional debt or equity financings, including project specific debt financings. We believe that when necessary, we will have adequate access to the capital markets, although our ability to raise capital on terms commercially acceptable to us could be constrained if there is insufficient lender or investor interest due to industry-wide or company-specific concerns. Such financings could result in increased debt service expenses or dilution to our existing stockholders.

As of March 31, 2017 , we had $2.4 billion in cash and marketable securities compared to $2.0 billion as of December 31, 2016 . Cash and marketable securities as of March 31, 2017 increased primarily from the sale of the Moapa project, collections on accounts receivable associated with projects sold in prior periods, and proceeds from borrowings under project specific debt financings, partially offset by purchases of property, plant and equipment. As of March 31, 2017 and December 31, 2016 , $1.2 billion of our cash and marketable securities were held by foreign subsidiaries and were generally based in U.S. dollar, Euro, and Japanese yen denominated holdings.

We utilize a variety of tax planning and financing strategies in an effort to ensure that our worldwide cash is available in the locations in which it is needed. If these funds were needed for our operations in the U.S., we could be required to accrue and pay U.S. taxes to repatriate such funds. We intend to permanently reinvest our unremitted earnings outside of the U.S., with the exception of Canada and Germany, and our future plans do not demonstrate a need to repatriate additional amounts to fund our domestic operations. Furthermore, changes to foreign government banking regulations may restrict our ability to move funds among various jurisdictions under certain circumstances, which could negatively impact our access to capital, resulting in an adverse effect on our liquidity and capital resources.

Our systems business requires significant liquidity and is expected to continue to have significant liquidity requirements in the future. The net amount of our project assets and deferred revenue, which approximates our net capital investment in the development and construction of systems projects, was $1.0 billion as of March 31, 2017 . Solar power project development and construction cycles, which span the time between the identification of a site location and the commercial operation of a system, vary substantially and can take many years to mature. As a result of these long project cycles and strategic decisions to finance the construction of certain projects, we may need to make significant up-front investments of resources in advance of the receipt of any cash from the sale of such projects. These up-front investments may include using our working capital, project financing arrangements, or availability under our Revolving Credit Facility to finance the construction of such projects. For example, we may have to complete, or substantially complete, the construction of a systems project before such project is sold. Delays in construction progress or in completing the sale of our systems projects that we are self-financing may also impact our liquidity. We have historically financed these up-front systems project investments primarily using working capital. In certain circumstances, we may need to finance construction costs exclusively using working capital, if project financing becomes unavailable due to market-wide, regional, or other concerns.

We are partnering with local developers on project development in markets around the world where we may take an equity stake in a project for a number of years. We are also self-developing projects in such markets where we may hold all or a significant portion of the equity in the projects for several years. Given the duration of these investments and the currency risk relative to the U.S. dollar in some of these new markets, we continue to explore local financing alternatives. Should these financing alternatives be unavailable or too cost prohibitive, we could be exposed to significant currency risk and our liquidity could be adversely impacted.

Additionally, we may elect to retain an ownership interest in certain systems projects after they become operational if we determine it would be of economic and strategic benefit to do so. If, for example, we cannot sell a systems project at economics that are attractive to us or potential customers are unwilling to assume the risks and rewards typical of PV solar power system ownership, we may instead elect to temporarily own and operate such systems until we can sell the systems on economically attractive terms. The decision to retain ownership of a system impacts liquidity depending upon the size and cost of the project. As of March 31, 2017 , we had $452.1 million of net PV solar power systems that had been placed in service, primarily in international markets. We may elect to enter into temporary or long-term project financing to reduce the impact on our liquidity and working capital with regards to such projects and systems. We may also consider entering into tax equity or other arrangements with respect to ownership interests in certain of our projects, including selling interests in our projects to the Partnership described under "Management's Discussion and Analysis of Financial Condition and Results of Operations – Certain Trends and Uncertainties – 8point3 Energy Partners LP," which could cause a portion of the economics of such projects to be recognized over time.

The following additional considerations have impacted or may impact our liquidity for the remainder of 2017 and beyond:

- The amount of solar module inventory and BoS parts as of March 31, 2017 was $414.4 million . As we continue with the construction of our advanced-stage project pipeline, we must produce solar modules and procure BoS parts in the required volumes to support our planned construction schedules. As part of this construction cycle, we typically must manufacture modules or acquire the necessary BoS parts for construction activities in advance of receiving payment for such materials, which may temporarily reduce our liquidity. Once solar modules and BoS parts are installed in a project, such installed amounts are classified as either project assets, PV solar power systems, or cost of sales depending upon whether the project is subject to a definitive sales contract and whether other revenue recognition criteria have been met. As of March 31, 2017 , $81.2 million **,** or 21% , of our solar module inventory was either on-site or in-transit to our systems projects. All BoS parts are for our systems business projects.

- We may commit working capital during the remainder of 2017 and beyond to acquire solar power projects in various stages of development, including advanced-stage projects with PPAs, and to continue developing those projects as necessary. Depending upon the size and stage of development, costs to acquire such solar power projects could be significant. When evaluating project acquisition opportunities, we consider both the strategic and financial benefits of any such acquisitions.

- Joint ventures or other strategic arrangements with partners are a part of our strategy. We have initiatives in several markets to expedite our penetration of those markets and establish relationships with potential customers. Some of these arrangements involve and are expected to involve significant investments or other allocations of capital that could reduce our liquidity or require us to pursue additional sources of financing, assuming such sources are available to us. Additionally, we have elected and may in the future elect or be required to temporarily retain a noncontrolling ownership interest in certain underlying systems projects we develop, supply modules to, or construct. Any such retained ownership interest is expected to impact our liquidity to the extent we do not obtain new sources of capital to fund such investments.

- We expect to make significant capital investments over the next two years as we transition our production to Series 6 module technology and purchase the related manufacturing equipment. We expect the aggregate capital investment for this program to be approximately $1 billion. During the remainder of 2017 , we expect to spend $410 million to $510 million for capital expenditures, the majority of which is associated with the Series 6 transition. We believe these capital expenditures will further increase our solar module conversion efficiencies, reduce manufacturing costs, and reduce the overall cost of systems employing our modules.

Cash Flows

The following table summarizes the key cash flow metrics for the three months ended March 31, 2017 and 2016 (in thousands):

	Three Months Ended March 31,	
	2017	2016
Net cash provided by operating activities	$ 493,144	$ 84,218
Net cash used in investing activities	(293,190)	(145,074)
Net cash provided by (used in) financing activities	102,164	(17,950)
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(7,307)	6,423
Net increase (decrease) in cash, cash equivalents and restricted cash	$ 294,811	$ (72,383)

Operating Activities

The increase in net cash provided by operating activities was primarily driven by the sale of the Moapa project during the three months ended March 31, 2017 and collections on accounts receivable associated with projects sold in 2016, partially offset by expenditures for the construction of certain project assets.

Investing Activities

The increase in net cash used in investing activities was primarily due to net purchases of marketable securities and restricted investments of $181.6 million during the three months ended March 31, 2017 compared to $89.7 million during the same period in 2016 and an increase in purchases of property, plant and equipment.

Financing Activities

The increase in net cash provided by financing activities was primarily the result of $94.7 million of proceeds from borrowings under our long-term debt arrangements associated with the construction of certain projects in Japan, India, and Australia and $43.0 million of proceeds from the discounting of commercial letters of credit associated with the construction of certain projects in India.

Contractual Obligations

Our contractual obligations have not materially changed since December 31, 2016 with the exception of borrowings under project specific debt financings and other changes in the ordinary course of business. See Note 12. “Debt” to our condensed consolidated financial statements included with this Quarterly Report on Form 10-Q for more information related to the changes in our long-term debt. See also our Annual Report on Form 10-K for the year ended December 31, 2016 for additional information regarding our contractual obligations.

Off-Balance Sheet Arrangements

As of March 31, 2017 , we have no off-balance sheet debt or similar obligations, other than financial assurance related instruments and operating leases, which are not classified as debt. We do not guarantee any third-party debt. See Note 13. “Commitments and Contingencies” to our condensed consolidated financial statements included in this Quarterly Report on Form 10-Q for further information about our financial assurance related instruments.

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

There have been no material changes from the information previously provided under Item 7A of our Annual Report on Form 10-K for the year ended December 31, 2016 .

Item 4. ***Controls and Procedures***

Evaluation of Disclosure Controls and Procedures

We carried out an evaluation, under the supervision and with the participation of management including our Chief Executive Officer and Chief Financial Officer, of the effectiveness of our "disclosure controls and procedures" as defined in Exchange Act Rule 13a-15(e) and 15d-15(e). Based on that evaluation, our Chief Executive Officer and Chief Financial Officer concluded that as of March 31, 2017 our disclosure controls and procedures were effective to ensure that information required to be disclosed by us in reports that we file or submit under the Exchange Act is recorded, processed, summarized, and reported within the time periods specified in SEC 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.

Changes in Internal Control over Financial Reporting

We also carried out an evaluation, under the supervision and with the participation of management including our Chief Executive Officer and Chief Financial Officer, of our "internal control over financial reporting" as defined in Exchange Act Rule 13a-15(f) and 15d-15(f) to determine whether any changes in our internal control over financial reporting occurred during the three months ended March 31, 2017 that materially affected, or are reasonably likely to materially affect, our internal control over financial reporting. Based on that evaluation, there were no such changes in our internal control over financial reporting that materially affected, or are reasonably likely to materially affect, our internal control over financial reporting during the three months ended March 31, 2017 .

CEO and CFO Certifications

We have attached as exhibits to this Quarterly Report on Form 10-Q the certifications of our Chief Executive Officer and Chief Financial Officer, which are required in accordance with the Exchange Act. We recommend that this Item 4 be read in conjunction with those certifications for a more complete understanding of the subject matter presented.

Limitations on the Effectiveness of Controls

Control systems, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control systems' objectives are being met. Further, the design of any system of controls must reflect the fact that there are resource constraints, and the benefits of all controls must be considered relative to their costs. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, within our Company have been detected. These inherent limitations include the realities that judgments in decision-making can be faulty and that breakdowns can occur because of error or mistake. Control systems can also be circumvented by the individual acts of some persons, by collusion of two or more people, or by management override of the controls. The design of any system of controls is also based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions. Over time, controls may become inadequate because of changes in conditions or deterioration in the degree of compliance with policies or procedures.

PART II. OTHER INFORMATION

Item 1. *Legal Proceedings*

See Note 13. “Commitments and Contingencies” under the heading “Legal Proceedings” of our condensed consolidated financial statements included in this Quarterly Report on Form 10-Q for legal proceedings and related matters.

Item 1A. *Risk Factors*

In addition to the other information set forth in this report, you should carefully consider the factors discussed in Part I, Item 1A. “Risk Factors” in our Annual Report on Form 10-K for the year ended December 31, 2016 , which could materially affect our business, financial condition, results of operations, or cash flows. The risks described in our Annual Report on Form 10-K for the year ended December 31, 2016 are not the only risks facing the Company. Additional risks and uncertainties not currently known to us or that we currently consider immaterial may also materially adversely affect our business, financial condition, results of operations, or cash flows. There have been no material changes in the risk factors contained in our Annual Report on Form 10-K for the year ended December 31, 2016 .

Item 5. *Other Information*

The Amended and Restated Bylaws of First Solar, Inc., attached herewith as Exhibit 3.1, have been reformatted but not otherwise amended from the bylaws filed as Exhibit 3.2 to our Annual Report on Form 10-K for the year ended December 31, 2015.

Item 6. *Exhibits*

The following exhibits are filed with this Quarterly Report on Form 10-Q:

Exhibit Number	Exhibit Description
3.1	Amended and Restated Bylaws of First Solar, Inc.
10.1	Form of Grant Notice for Executive Performance Equity Plan
31.01	Certification of Chief Executive Officer pursuant to 15 U.S.C. Section 7241, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.02	Certification of Chief Financial Officer pursuant to 15 U.S.C. Section 7241, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.01*	Certification of Chief Executive Officer and Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	XBRL Taxonomy Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document

* This exhibit shall not be deemed “filed” for purposes of Section 18 of the Exchange Act or otherwise subject to the liabilities of that section, nor shall it be deemed incorporated by reference in any filing under the Securities Act or the Exchange Act, whether made before or after the date hereof and irrespective of any general incorporation language in any filings.

SIGNATURE

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

FIRST SOLAR, INC.

Date: May 4, 2017	By:	/s/ BRYAN SCHUMAKER
	Name:	Bryan Schumaker
	Title:	Chief Accounting Officer

EXHIBIT 3.1

BYLAWS

OF

FIRST SOLAR, INC.

(hereinafter called the "Corporation")

AMENDED AND RESTATED AS OF FEBRUARY 18, 2016

ARTICLE I

Meetings of Stockholders

Section 1. Place of Meetings . Meetings of the stockholders shall be held at such time and place, either within or without the State of Delaware, as shall be designated from time to time by the Board of Directors or the Chairman of the Board of Directors and stated in the notice of the meeting or in a duly executed waiver of notice thereof. Adjournments of meetings may be held at the place at which the meeting adjourned is being held, or at any other place determined by the Board of Directors, whether or not a quorum shall have been present at such meeting.

Section 2. Annual Meetings. To the extent required by applicable law or the Amended and Restated Certificate of Incorporation of the Corporation, an annual meeting of the stockholders for the election of directors and for the transaction of such other business as shall have been properly brought before the meeting shall be held at such time and on such date as shall be determined by the Board of Directors and stated in the notice of the meeting.

Section 3. Special Meetings. Unless otherwise prescribed by law or by the Amended and Restated Certificate of Incorporation, subject to the rights of the holders of any series of preferred stock of the Corporation with respect to special meetings of the holders thereof, special meetings of the stockholders of the Corporation may be called at any time only by the Board of Directors or the Chairman of the Board of Directors.

Section 4. Notice of Meetings. Except as otherwise provided by applicable law or by the Amended and Restated Certificate of Incorporation, notice of each meeting of the stockholders, whether annual or special, shall be given not less than ten days nor more than 60 days before the date of the meeting to each stockholder of record entitled to notice of the meeting. If mailed, such notice shall be deemed given when deposited in the United States mail, postage prepaid, directed to the stockholder at such stockholder's address as it appears on the records of the Corporation. Each such notice shall state the place, if any, date and hour of the meeting and, in the case of a special meeting, the purpose or purposes for which the meeting is called. Notice of any meeting of the stockholders shall not be required to be given to any stockholder who shall waive notice thereof as provided

in Section 2 of Article VI of these Bylaws. Notice of adjournment of a meeting of the stockholders need not be given if the time and place to which it is adjourned are announced at such meeting, unless the adjournment is for more than 30 days or, after adjournment, a new record date is fixed for the adjourned meeting.

Section 5. Quorum; Adjournment. Except as otherwise provided by applicable law or by the Amended and Restated Certificate of Incorporation of the Corporation, the holders of a majority in total voting power of the outstanding capital stock of the Corporation entitled to vote at a meeting of the stockholders, present in person or represented by proxy, shall constitute a quorum for the transaction of business at any annual or special meeting of the stockholders; provided , however , that where a separate vote by a class or series of capital stock is required, the holders of a majority in total voting power of the outstanding capital stock of such class or series, present in person or represented by proxy, shall constitute a quorum entitled to take action with respect to such vote on such matter. The chairman of the meeting or the holders of a majority of the votes entitled to be cast by the stockholders who are present in person or by proxy may adjourn the meeting from time to time whether or not a quorum is present. In the event that a quorum does not exist with respect to any vote to be taken by a particular class or series, the chairman of the meeting or the holders of a majority of the votes entitled to be cast by the stockholders of such class or series who are present in person or by proxy may adjourn the meeting with respect to the vote(s) to be taken by such class or series. At any such adjourned meeting at which a quorum may be present, any business may be transacted which might have been transacted at the meeting as originally called. If the adjournment is for more than 30 days, or if after the adjournment a new record date is fixed for the adjourned meeting, a notice of the adjourned meeting shall be given to each stockholder entitled to vote at the meeting not less than ten nor more than 60 days before the date of the meeting, unless a different period is prescribed by applicable law.

Section 6. Voting. Unless otherwise required by law, the Amended and Restated Certificate of Incorporation or these Bylaws, any question brought before any meeting of the stockholders shall be decided by the vote of the holders of a majority of the stock represented and voting on such question. Notwithstanding the foregoing, the election of directors shall be determined in accordance with Section 3(b) of Article II of these Bylaws. Each stockholder represented at a meeting of the stockholders shall be entitled to cast one vote for each share of the capital stock entitled to vote thereat held by such stockholder. Such votes may be cast in person or by proxy.

Section 7. Order of Business. (a) At every meeting of stockholders, the Chairman of the Board of Directors, or in such person's absence or at such person's direction, any person appointed by the Chairman of the Board of Directors, shall act as chairman of the meeting. The Secretary of the Corporation shall act as secretary of the meeting, but in the absence of the Secretary of the Corporation, the chairman of the meeting may appoint any person to act as secretary of the meeting.

(b) Annual Meetings. (i) Except as otherwise provided in the Amended and Restated Certificate of Incorporation of the Corporation, nominations of persons for

election to the Board of Directors and the proposal of business to be considered by the stockholders at any annual meeting of the stockholders may be made only (A) pursuant to the Corporation's notice of meeting (or any supplement thereto), (B) by or at the direction of the Board of Directors or (C) by any stockholder of the Corporation (1) who is a holder of record at the time of the giving of the notice provided for in this Section 7 and at the time of the annual meeting of the stockholders, (2) who is entitled to vote at the annual meeting and (3) who complies with the procedures set forth in this Section 7. The immediately preceding sentence shall be the exclusive means for stockholders to make nominations or to bring other business proposals before an annual meeting of stockholders (other than matters properly brought under Rule 14a-8 under the Securities Exchange Act of 1934, as amended (such act, and all rules and regulations promulgated thereunder, the "Exchange Act"), and included in the Corporation's notice of meeting).

(ii) Except as otherwise provided in the Amended and Restated Certificate of Incorporation of the Corporation, for nominations to be properly made at and proposals of other business to be properly brought before an annual meeting by a stockholder pursuant to this Section 7, the stockholder must have given timely notice thereof, which notice must comply with the requirements of Article I, Section 7(b)(iii) (including, in the case of nominations, timely delivery of the completed and signed questionnaire, representation and agreement required by Article I, Section 7(b)(vi) hereof), and timely updates and supplements thereof, in writing to the Secretary, and such other business must otherwise be a proper matter for stockholder action under applicable law. To be timely, a stockholder's notice must be delivered to or mailed and received at the principal executive offices of the Corporation not later than the close of business on the 90th day and not earlier than the opening of business on the 120th day prior to the anniversary date of the immediately preceding annual meeting; provided , however , that in the event that the date of the annual meeting is more than 30 days earlier or more than 60 days later than such anniversary date, notice by the stockholder to be timely must be so delivered or received not earlier than the opening of business on the 120th day prior to such annual meeting and not later than the close of business on the later of the 90th day prior to such annual meeting or the 10th day following the day on which public announcement of the date of such meeting is first made. In no event shall the public announcement of an adjournment or postponement of an annual meeting commence a new time period (or extend any time period) for the giving of a stockholder's notice as described above. In addition, to be considered timely, a stockholder's notice shall further be updated and supplemented, if necessary, so that the information provided or required to be provided in such notice shall be true and correct as of the record date for the meeting and as of the date that is 10 business days prior to the meeting or any adjournment or postponement thereof, and such update and supplement shall be delivered to the Secretary at the principal executive offices of the Corporation by the later of the close of business on the fifth business day after the record date for the meeting or the deadline for the delivery of the stockholder's notice, in the case of the update and supplement required to be made as of the record date, and not later than the close of business on the eighth business day prior to the date for the meeting or any adjournment or postponement thereof in the case of the update and supplement required to be made as of 10 business days prior to the meeting or any adjournment or postponement thereof. Any notice of a nomination shall include a

representation that the stockholder will properly notify the Corporation in writing of any subsequent change in the information provided or required to be provided.

(iii) Any stockholder's notice to the Secretary of the Corporation pursuant to Article I, Section 7 must include in writing the following, as applicable:

(A) in any case, as to the stockholders giving the notice and the beneficial owner(s) on whose behalf the nomination or proposal is made, (1) the name and address, as they appear on the Corporation's books, of each such stockholder proposing such business or nomination and the name and address of each such beneficial owner and of their respective affiliates or associates or others acting in concert therewith; (2) the class or series and number of shares of the Corporation which are, directly or indirectly, owned beneficially or owned of record by such stockholder or stockholders, such beneficial owner and their respective affiliates or associates or others acting in concert therewith; (3) description of any agreement, arrangement or understanding (including any derivative or short positions, profit interests, options, warrants, stock appreciation or similar rights, hedging transactions, and borrowed or loaned shares) involving any such stockholder or stockholders or such beneficial owners, directly or indirectly, whether or not such instrument or right shall be subject to settlement in underlying shares of capital stock of the Corporation, the effect or intent of which is to mitigate loss to, manage risk or benefit of share price change for, or maintain, increase or decrease the voting power of, such stockholder or such beneficial owners with respect to shares of stock of the Corporation; (4) a representation that the applicable stockholder is a holder of record of stock of the Corporation entitled to vote at such annual meeting and intends to appear in person or by proxy at such meeting to propose such business and (5) a representation whether the applicable stockholder intends to solicit proxies in support of such stockholder's proposal;

(B) as to a notice relating to any business other than a nomination of a director or directors that such stockholders propose to bring before the meeting, as to such other business, (1) a brief description of the business desired to be brought before the annual meeting and the reasons for conducting such business at the annual meeting; (2) the text of the proposal or business (including the text of any resolutions proposed for consideration and, in the event that such business includes a proposal to amend the Bylaws of the Corporation, the language of the proposed amendment) and (3) any material interest in such business of any such stockholder or any such beneficial owner on whose behalf the proposal is made;

(C) as to a notice relating to the nomination of a director or directors, as to each person, if any, whom such stockholders propose to elect or nominate for election or reelection to the Board of Directors, in addition to the matters set forth in paragraph (A) above with respect to such proposed nominee, (1) the name, age, business address and residence address of such person; (2) the principal occupation or employment of such person; (3) all information relating to such person that is required to be disclosed in connection with solicitations of proxies for election of directors in a contested election or is otherwise required pursuant to Regulation 14A under the Exchange Act (including such person's written consent

to being named in a proxy statement as a nominee and to serving as a director if elected); and (4) a description of all arrangements or understandings between any such stockholder or any such beneficial owner or any of their respective affiliates or associates or others acting in concert therewith and each nominee and any other person or persons (naming such person or persons) pursuant to which the nomination or nominations are to be made by such stockholder; and

(D) with respect to each person, if any, whom such stockholders propose to elect or nominate for election or reelection to the Board of Directors, in addition to the matters set forth in paragraphs (A) and (C) above, any notice given to the Corporation must also include a completed and signed questionnaire, representation and agreement as specified by Article I, Section 7(b)(vi) hereof. The Corporation may require any proposed nominee to furnish such other information as may reasonably be required by the Corporation to determine the eligibility of such proposed nominee to serve as an independent director of the Corporation or that could be material to a reasonable stockholder's understanding of the independence, or lack thereof, of such nominee.

(iv) Notwithstanding the foregoing provisions of this Section 7 of Article I, if the stockholder (or a qualified representative of the stockholder) does not appear at the annual meeting of stockholders of the Corporation to present an item of business or is no longer a holder of record on the date of such meeting, such proposed business shall not be transacted, notwithstanding that proxies in respect of such vote may have been received by the Corporation. For purposes of this Section 7 of Article I, to be considered a qualified representative of the stockholder, a person must be a duly authorized officer, manager or partner of such stockholder or must be authorized by a writing executed by such stockholder or an electronic transmission delivered by such stockholder to act for such stockholder as proxy at the meeting of stockholders and such person must produce such writing or electronic transmission, or a reliable reproduction of such writing or electronic transmission, at the meeting of stockholders.

(v) Notwithstanding anything in paragraph (a)(i) above to the contrary, in the event that the number of directors to be elected to the Board of Directors at an annual meeting of the stockholders is increased and there is no public announcement naming all of the nominees for directors or specifying the size of the increased Board of Directors made by the Corporation earlier than the close of business on the 90th day prior to the first anniversary of the date of the immediately preceding annual meeting, a stockholder's notice required by this Section 7 shall also be considered timely, but only with respect to nominees for any new positions created by such increase, if it shall be delivered to or mailed to and received by the Secretary at the principal executive offices of the Corporation not later than the close of business on the 10th day following the day on which such public announcement is first made by the Corporation.

(vi) To be eligible to be a nominee for election or reelection as a director of the Corporation, a person must deliver (in accordance with the time periods prescribed for delivery of notice or other request under this Section 7 of Article I of these Bylaws and under

the Certificate of Incorporation) to the Secretary at the principal executive offices of the Corporation a written questionnaire with respect to the background and qualification of such person and the background of any other person or entity on whose behalf the nomination is being made (which questionnaire shall be provided by the Secretary upon written request), and a written representation and agreement (in the form provided by the Secretary upon written request) that such person (1) is not and will not become a party to (i) any agreement, arrangement or understanding with, and has not given any commitment or assurance to, any person or entity as to how such person, if elected as a director of the Corporation, will act or vote on any issue or question (a "Voting Commitment") that has not been disclosed to the Corporation or (ii) any Voting Commitment that could limit or interfere with such person's ability to comply, if elected as a director of the Corporation, with such person's fiduciary duties under applicable law, (2) is not and will not become a party to any agreement, arrangement or understanding with any person or entity other than the Corporation with respect to any direct or indirect compensation, reimbursement or indemnification in connection with service or action as a director that has not been disclosed therein, (3) in such person's individual capacity and on behalf of any person or entity on whose behalf the nomination is being made, would be in compliance, if elected as a director of the Corporation, and will comply, with all applicable corporate governance, conflict of interest, confidentiality and stock ownership and trading policies and guidelines of the Corporation and (4) will abide by the requirements of Section 7 of Article I.

(c) Special Meetings. (i) Only such business shall be conducted at a special meeting of stockholders as shall have been brought before the meeting pursuant to the Corporation's notice of meeting. Nominations of persons for election to the Board of Directors may only be made at a special meeting of stockholders at which directors are to be elected pursuant to the Corporation's notice of meeting (A) by or at the direction of the Board of Directors or (B) provided that the Board of Directors has determined that directors shall be elected at such meeting, by any stockholder who (1) is a stockholder of record at the time of the giving of notice of the special meeting and at the time of the special meeting, (2) who is entitled to vote at the special meeting and (3) who complies with the procedures set forth in this Section 7 and the Amended and Restated Certificate of Incorporation of the Corporation as to such nomination. The immediately preceding sentence shall be the exclusive means for stockholders to make nominations before a special meeting of stockholders (other than matters properly brought under Rule 14a-8 under the Exchange Act and included in the Corporation's notice of meeting).

(ii) In the event the Corporation calls a special meeting of stockholders for the purpose of electing one or more directors to the Board of Directors, any such stockholder may nominate a person or persons (as the case may be), for election to such position(s) as specified in the Corporation's notice of meeting, provided that the stockholder gives timely notice thereof, which notice must comply with the requirements of Article I, Section 7(b)(iii) (including timely delivery of the completed and signed questionnaire, representation and agreement required by Article I, Section 7(b)(vi) hereof), and timely updates and supplements thereof, in writing to the Secretary of the Corporation. To be timely, a stockholder's notice must be delivered to or mailed and received at the principal executive

offices of the Corporation not earlier than the opening of business on the 120th day prior to such special meeting and not later than the close of business on the later of the 90th day prior to such annual meeting or the 10th day following the day on which public announcement of the date of such meeting is first made. In no event shall the public announcement of an adjournment or postponement of a special meeting commence a new time period (or extend any time period) for the giving of a stockholder's notice as described above. In addition, to be considered timely, a stockholder's notice shall further be updated and supplemented, if necessary, so that the information provided or required to be provided in such stockholder's notice shall be true and correct as of the record date for the meeting and as of the date that is 10 business days prior to the meeting or any adjournment or postponement thereof, and such update and supplement shall be delivered to the Secretary at the principal executive offices of the Corporation by the later of the close of business on the fifth business day after the record date for the meeting or the deadline for the delivery of the stockholder's notice, in the case of the update and supplement required to be made as of the record date, and not later than the close of business on the eighth business day prior to the date for the meeting or any adjournment or postponement thereof in the case of the update and supplement required to be made as of 10 business days prior to the meeting or any adjournment or postponement thereof. Any such notice shall include a representation that the stockholder will properly notify the Corporation in writing of any subsequent change in the information provided or required to be provided.

(d) General. (i) Except as otherwise provided in the Amended and Restated Certificate of Incorporation of the Corporation, only such persons who are nominated in accordance with this Section 7 shall be eligible to serve as directors of the Corporation and only such business shall be conducted at a meeting of stockholders as shall have been brought before the meeting in accordance with the procedures set forth in this Section 7. The Chairman of a meeting shall refuse to permit any business to be brought before the meeting which fails to comply with the foregoing or if a stockholder solicits proxies in support of such stockholder's nominee or proposal without such stockholder having made the representation required by clause (A)(5) of paragraph (b)(iii) above.

(ii) For purposes of these Bylaws, "public announcement" shall mean disclosure in a press release reported by a national news service or in a document publicly filed by the Corporation with the Securities and Exchange Commission pursuant to Section 13, 14 or 15(d) of the Exchange Act.

(iii) Notwithstanding the provisions of these Bylaws, a stockholder shall also comply with all applicable requirements of the Exchange Act with respect to the matters set forth in these Bylaws; provided, however, that any references in these Bylaws to the Exchange Act are not intended to and shall not limit the separate and additional requirements set forth in these Bylaws with respect to nominations or proposals as to any other business to be considered pursuant to Section 7 of Article I. Nothing in this Section 7 of Article I shall be deemed to affect any rights of (A) stockholders to request inclusion of proposals or nominations in the Corporation's proxy statement pursuant to Rule 14a-8 under the Exchange Act or (B) the holders of any series of Preferred Stock if and to the extent provided for under

the law, the Amended and Restated Certificate of Incorporation of the Corporation (or any designation of Preferred Stock issued thereunder)or these Bylaws.

Section 8. Meeting by Means of Remote Communication. If authorized by the Board of Directors in its sole discretion, and subject to such guidelines and procedures as the Board of Directors may adopt, stockholders and proxyholders not physically present at a meeting of stockholders may, by means of remote communication, participate in a meeting of stockholders and be deemed present in person and vote at a meeting of stockholders whether such meeting is to be held at a designated place or solely by means of remote communication; provided, however, that (i) the Corporation shall implement reasonable measures to verify that each person deemed present and permitted to vote at such meeting by means of remote communication is a stockholder or proxyholder, (ii) the Corporation shall implement reasonable measures to provide such stockholders and proxyholders a reasonable opportunity to participate in such meeting and to vote on matters submitted to the stockholders, including an opportunity to read or hear the proceedings of such meeting substantially concurrently with such proceedings and (iii) if any stockholder or proxyholder votes or takes other action at such meeting by means of remote communication, a record of such vote or other action shall be maintained by the Corporation.

Section 9. List of Stockholders Entitled to Vote. The officer of the Corporation who has charge of the stock ledger of the Corporation shall prepare and make, at least ten days before every meeting of the stockholders, a complete list of the stockholders entitled to vote at the meeting, arranged in alphabetical order, and showing the address of each stockholder and the number of shares registered in the name of each stockholder. Such list shall be open to examination by any stockholder, for any purpose germane to the meeting, during ordinary business hours, for a period of at least ten days prior to the meeting, either at a place within the city where the meeting is to be held, which place shall be specified in the notice of the meeting, or, if not so specified, at the place where the meeting is to be held. The list shall also be produced and kept at the time and place of the meeting during the whole time thereof, and may be inspected by any stockholder of the Corporation who is present.

Section 10. Stock Ledger. The stock ledger of the Corporation shall constitute the list required by Section 9 of this Article I and shall be the only evidence as to who are the stockholders entitled to examine the stock ledger or to vote in person or by proxy at any meeting of stockholders.

Section 11. Inspection of Election. The Corporation may, and at the request of any stockholder or if required by law shall, before or at each meeting of stockholders, appoint one or more inspectors of elections to act at the meeting and make a written report thereof. The Corporation may designate one or more persons as alternate inspectors to replace any inspector who fails to act. If no inspector or alternate is able to act at a meeting of the stockholders, the chairman of the meeting may, and at the request of any stockholder or if required by law shall, appoint one or more inspectors to act at the meeting. Unless otherwise required by law, inspectors may be officers, employees or agents of the Corporation. Each inspector, before entering upon the discharge of his or her duties, shall

take and sign an oath to execute faithfully the duties of inspector with strict impartiality and according to the best of his or her ability. The inspector or inspectors so appointed or designated shall (i) ascertain the number of outstanding shares of capital stock of the Corporation and the voting power of each such share, (ii) determine the shares of capital stock of the Corporation represented at the meeting and the validity of proxies and ballots, (iii) count all votes and ballots, (iv) determine and retain for a reasonable period a record of the disposition of any challenges made to any determination by the inspectors and (v) certify their determination of the number of shares of capital stock of the Corporation represented at the meeting and such inspectors' count of all votes and ballots. Such certification and report shall specify such other information as may be required by law. In determining the validity and counting of proxies and ballots cast at any meeting of the stockholders of the Corporation, the inspectors may consider such information as is permitted by applicable law. No person who is a candidate for an office at an election may serve as an inspector at such election.

ARTICLE II
Directors

Section 1. Duties and Powers. The business of the Corporation shall be managed by or under the direction of the Board of Directors which may exercise all such powers of the Corporation and do all such lawful acts and things as are not by statute or by the Amended and Restated Certificate of Incorporation or by these Bylaws, conferred upon or reserved to the stockholders.

Section 2. Number of Directors. The number of directors of the Corporation shall not be less or more than the range specified in the Amended and Restated Certificate of Incorporation of the Corporation, the exact number of directors to be such number as may be set from time to time within the limits set forth above by resolution adopted by affirmative vote of a majority of the entire Board of Directors. As used in these Bylaws, the term "entire Board" means the total number of directors that the Corporation would have if there were no vacancies or unfilled newly created directorships.

Section 3. Qualification and Election of Directors. (a) Directors need not be stockholders or citizens or residents of the United States of America. Each of the directors shall hold office until his resignation or removal in the manner hereinafter provided.

(b) Election of Directors. (i) Except as otherwise required by statute or by the Amended and Restated Certificate of Incorporation of the Corporation, each person to be elected as a director shall be elected by a majority of the votes cast with respect to such person's election; provided , however , that in a Contested Election, directors shall be elected by a plurality of the votes cast at a meeting of stockholders by the holders of shares of capital stock of the Corporation entitled to vote thereon, voting together as a single class. For purposes of this Section 3(b), (A) a person shall be considered to have received a majority of the votes cast with respect to such person's election only if the number of votes cast "for" such person's election exceeds the number of votes cast "against" such person's election,

with "abstentions" and "broker non-votes" not counted as a vote cast either "for" or "against" such person's election, (B) "Contested Election" shall mean any election for directors in which the number of nominees for director exceeds the number of Board seats open for election, and (C) "Uncontested Election" shall mean any election for directors other than a Contested Election.

(ii) If an incumbent director receives less than a majority of the votes cast with respect to such director's election in an Uncontested Election, such director shall promptly tender his or her resignation to the Chairman of the Board of Directors for consideration by the Nominating and Governance Committee. No later than 90 days following the receipt of any such tendered resignation, (A) the Board of Directors shall, taking into account any recommendation by the Nominating and Governance Committee, take formal action with respect thereto (which action may include accepting or rejecting such tendered resignation, or taking other action considered appropriate) and (B) the Corporation shall publicly disclose the Board of Directors' decision and, in the event that the Board of Directors does not accept such tendered resignation, the rationale for such decision. The Nominating and Governance Committee, in making any recommendation under this Section 3(b), and the Board of Directors, in making any decision under this Section 3(b), may consider any factors or other information they consider appropriate or relevant.

Section 4. Resignations. Subject to Section 3(b) of this Article II, (a) any director may resign at any time; (b) such resignation shall be made in writing, and shall take effect at the time specified therein, and if no time be specified, at the time of its receipt by the Chairman of the Board of Directors, the Chief Executive Officer or the Secretary; and (c) unless otherwise specified in such notice, the acceptance of such resignation shall not be necessary to make it effective.

Section 5. Removal. Directors may only be removed as provided in the Amended and Restated Certificate of Incorporation of the Corporation.

Section 6. Vacancies and Newly Created Directorships. Vacancies and newly created directorships resulting from any increase in the authorized number of directors may be filled by a majority of the directors then in office, though less than a quorum, or by a sole remaining director, and the directors so chosen shall hold office until their earlier resignation or removal.

Section 7. Chairman of the Board of Directors. The directors shall elect one of the members of the Board of Directors to be Chairman of the Board of Directors. The Chairman of the Board of Directors shall perform such duties as are specified in these Bylaws and any such additional duties that may from time to time be assigned by the Board of Directors. The Chairman of the Board of Directors may, but need not be, an officer of the Corporation. The Chairman of the Board of Directors may be removed from such position by the Board of Directors at any time.

Section 8. Annual Meetings. The Board of Directors shall meet for the election of officers and the transaction of other business as soon as practicable after each

annual meeting of the stockholders, and no notice of such meeting shall be necessary in order legally to constitute the meeting; provided, however, that a quorum is present. Such meeting may be held at any other time or place specified in a notice given as hereinafter provided for regular meetings of the Board of Directors.

Section 9. Regular Meetings. The Board of Directors may hold meetings, both regular and special, either within or without the State of Delaware. Regular meetings of the Board of Directors may be held at such time and at such place as may from time to time be determined by the Board of Directors. The Secretary, or in his or her absence any other officer of the Corporation, shall give each director notice of the time and place of holding of regular meetings of the Board of Directors by mail at least five days before the meeting, or by facsimile, telegram, cable, electronic transmission or personal service at least two days before the meeting, unless such notice requirement is waived in writing or by electronic transmission by such director.

Section 10. Special Meetings. Special meetings of the Board of Directors may be called by the Chairman of the Board of Directors or the Chief Executive Officer, and shall be called by the Secretary of the Corporation upon the written request of not less than a majority of the members of the Board of Directors then in office. Special meetings of the Board of Directors shall be held at such time and place as shall be designated in the notice of the meeting. The Secretary, or in his or her absence any other officer of the Corporation, shall give each director notice of the time and place of holding of special meetings of the Board of Directors by mail at least five days before the meeting, or by facsimile, telegram, cable, electronic transmission or personal service at least two days before the meeting, unless such notice requirement is waived in writing or by electronic transmission by such director. Unless otherwise stated in the notice thereof, any and all business shall be transacted at any meeting without specification of such business in the notice.

Section 11. Quorum. Unless otherwise provided by law, the Amended and Restated Certificate of Incorporation or these Bylaws, at all meetings of the Board of Directors, a majority of the entire Board of Directors shall constitute a quorum for the transaction of business and the act of a majority of the directors present at any meeting at which there is a quorum shall be the act of the Board of Directors. If a quorum shall not be present at any meeting of the Board of Directors, the directors present thereat may adjourn the meeting from time to time, without notice other than announcement at the meeting, until a quorum shall be present.

Section 12. Actions of Board of Directors. Unless otherwise provided by law, the Amended and Restated Certificate of Incorporation or these Bylaws, any action required or permitted to be taken at any meeting of the Board of Directors may be taken without a meeting, if all the members of the Board of Directors then in office consent thereto in writing or by electronic transmission, and such writing or writings or electronic transmission or transmissions are filed with the minutes of proceedings of the Board of Directors. Such filing shall be in paper form if the minutes are maintained in paper form and shall be in electronic form if the minutes are maintained in electronic form. The date

on which an electronic transmission is transmitted shall be deemed to be the date on which consent was given for the applicable action, even if such electronic transmission is subsequently followed by a written consent that is dated after such date of transmission.

Section 13. Organization. Meetings shall be presided over by the Chairman of the Board of Directors, or in the absence of the Chairman of the Board of Directors, by such other person as the directors may select. The Board of Directors shall keep written minutes of its meetings. The Secretary of the Corporation shall act as secretary of the meeting, but in the absence of the Secretary of the Corporation, the chairman of the meeting may appoint any person to act as secretary of the meeting.

Section 14. Meeting by Means of Conference Telephone. Unless otherwise provided by law, the Amended and Restated Certificate of Incorporation or these Bylaws, members of the Board of Directors may participate in a meeting of the Board of Directors by means of a conference telephone or similar communications equipment that enables all persons participating in the meeting to hear each other, and participation in a meeting pursuant to this Section 14 shall constitute presence in person at such meeting.

Section 15. Compensation. Each director, other than directors who are officers or employees of the Corporation or any of its subsidiaries, shall be entitled to receive from the Corporation such amount per annum and such fees (payable in cash, stock and equity) for attendance at meetings of the Board of Directors or of committees of the Board of Directors, or both, as the Board of Directors shall from time to time determine. Each director shall be entitled to receive from the Corporation reimbursement for the reasonable expenses incurred by such person in connection with the performance of such person's duties as director. Nothing herein contained, however, shall be construed to preclude any director from serving the Corporation in any other capacity as an officer, agent or otherwise, and receiving compensation therefor.

ARTICLE III

Committees

Section 1. Constitution and Powers. Except as otherwise provided by applicable law, the Amended and Restated Certificate of Incorporation of the Corporation or these Bylaws, the Board of Directors may, by resolution of a simple majority of its members, designate one or more committees. Initially, the Corporation shall have the following committees of the Board of Directors: the nominating and corporate governance committee, the audit committee and the compensation committee. Each committee shall consist of one or more directors of the Corporation. Except as provided by applicable law, the Amended and Restated Certificate of Incorporation of the Corporation or these Bylaws, the Board of Directors, by a simple majority vote of its members, shall have the right from time to time to delegate to or to remove from any board committee the authority to approve any matters which would not otherwise require a higher vote than a simple majority vote of the Board of Directors. Except as required by applicable law, the Amended and Restated Certificate of Incorporation of the Corporation or these Bylaws, for those matters that require

a higher vote of the Board of Directors than a simple majority vote, the Board of Directors, by such requisite higher vote, shall have the right from time to time to delegate to or to remove from any board committee the authority to approve any such matters requiring such requisite higher vote.

Section 2. Organization of Committees. (a) The Board of Directors may designate one or more directors as alternate members of any committee, who may replace any absent or disqualified member at any meeting of such committee and (b) in the absence or disqualification of a member of a committee, the member or members thereof present at any meeting and not disqualified from voting, whether or not they constitute a quorum, may unanimously appoint another member of the Board of Directors to act at the meeting in place of any such absent or disqualified member. Each committee that may be established by the Board of Directors may fix its own rules and procedures. All committees so appointed shall keep regular minutes of the transactions of their meetings and shall be responsible to the Board of Directors for the conduct of the enterprises and affairs entrusted to them. Notice of meetings of committees, other than of regular meetings provided for by such rules, shall be given to committee members.

ARTICLE IV
Officers

Section 1. General. The officers of the Corporation shall be appointed by the Board of Directors and shall include a Chief Executive Officer, a Chief Financial Officer, one or more Presidents, a Secretary and a Treasurer. The Board of Directors, in its discretion, may also appoint a Chief Accounting Officer, one or more Vice Presidents (including Executive and Senior Vice Presidents), Assistant Secretaries, Assistant Treasurers or Assistant Controllers as it may deem proper. Any number of offices may be held by the same person, unless otherwise prohibited by law, the Amended and Restated Certificate of Incorporation or these Bylaws; provided , however , that no officer shall execute, acknowledge or verify any instrument in more than one capacity if such instrument is required by law, the Amended and Restated Certificate of Incorporation of the Corporation or these Bylaws to be executed, acknowledged or verified by two or more officers. The officers of the Corporation need not be stockholders or directors of the Corporation.

Section 2. Election. The Board of Directors shall elect the officers of the Corporation who shall hold their offices for such terms and shall exercise such powers and perform such duties as shall be determined from time to time by the Board of Directors; and all officers of the Corporation shall hold office until their successors are chosen and qualified, or until their earlier resignation or removal.

Section 3. Removal. Any officer may be removed, either with or without cause, by the Board of Directors at any meeting thereof or by any superior officer upon whom such power may be conferred by the Board of Directors.

Section 4. Resignation. Any officer may resign at any time by giving notice to the Board of Directors, the Chairman of the Board of Directors, the Chief Executive Officer or the Secretary of the Corporation in writing or by electronic transmission. Any such resignation shall take effect at the time therein specified or if no time is specified, immediately. Unless otherwise specified in such notice, the acceptance of such resignation shall not be necessary to make it effective.

Section 5. Vacancies. A vacancy in any office because of death, resignation, removal, disqualification or any other cause may be filled at any time by the Board of Directors, or if such officer was appointed by the Chief Executive Officer, then by the Chief Executive Officer.

Section 6. Voting Securities Owned by the Corporation. Powers of attorney, proxies, waivers of notice of meeting, consents and other instruments relating to securities owned by the Corporation may be executed in the name of and on behalf of the Corporation by the Chief Executive Officer, Chief Financial Officer or Secretary of the Corporation and any such officer may, in the name of and on behalf of the Corporation, take all such action as any such officer may deem advisable to vote in person or by proxy at any meeting of security holders of any corporation in which the Corporation may own securities and at any such meeting shall possess and may exercise any and all rights and powers incident to the ownership of such securities and which, as the owner thereof, the Corporation might have exercised and possessed if present, in each case subject to having obtained the requisite Board of Directors' and stockholders' approvals with respect to any such matter. The Board of Directors may, by resolution, from time to time confer like powers upon any other person or persons.

Section 7. Chairman of the Board of Directors. The Chairman of the Board of Directors shall have such powers and shall perform such duties as are specified in Section 7 of Article II of these Bylaws.

Section 8. Chief Executive Officer. The Chief Executive Officer shall exercise general and active supervision over and management of the property, affairs and business of the Corporation and shall authorize other officers of the Corporation to exercise such powers as he, in his discretion, may deem to be in the best interests of the Corporation. The Chief Executive Officer may preside at meetings of the stockholders and the Board of Directors in the absence or at the direction of the Chairman of the Board of Directors. The Chief Executive Officer shall, in general, perform all duties incident to the office of Chief Executive Officer and shall have such other duties as the Board of Directors may from time to time prescribe. Without limiting the generality of the foregoing, the Chief Executive Officer may enter into and execute in the name of the Corporation contracts and other obligations which implement policies established by the Board of Directors.

Section 9. President. Any President shall have such powers and shall perform such duties as the Board of Directors, the Chief Executive Officer or these Bylaws may from time to time prescribe. Without limiting the generality of the foregoing, Presidents may enter into and execute in the name of the Corporation contracts and other obligations

pertaining to the regular course of their duties which implement policies established by the Board of Directors.

Section 10. Vice President. Any Vice President shall have such duties as the Board of Directors, the Chief Executive Officer, his superior officer or these Bylaws may from time to time prescribe. Without limiting the generality of the foregoing, Vice Presidents may enter into and execute in the name of the Corporation contracts and other obligations pertaining to the regular course of their duties which implement policies established by the Board of Directors.

Section 11. Chief Financial Officer. The Chief Financial Officer shall be the principal financial officer of the Corporation and shall have such powers and perform such duties as the Board of Directors, the Chief Executive Officer or these Bylaws may from time to time prescribe. Without limiting the generality of the foregoing, the Chief Financial Officer may sign and execute contracts and other obligations pertaining to the regular course of his or her duties which implement policies established by the Board of Directors.

Section 12. Treasurer. The Treasurer shall have the custody of the corporation funds and securities and shall keep full and accurate account of receipts and disbursements in books belonging to the Corporation. He or she shall deposit all moneys and other valuables in the name and to the credit of the Corporation in such depositaries as may be designated by the Board of Directors. He or she shall disburse the funds of the Corporation as may be ordered by the Board of Directors, the Chief Executive Officer or the Chief Financial Officer, taking proper vouchers for such disbursements.

Section 13. Chief Accounting Officer. The Chief Accounting Officer, if any, shall serve as the principal accounting officer of the Corporation, unless such role is performed by the Chief Financial Officer. The Chief Accounting Officer shall, when requested, counsel with and advise the other officers of the Corporation regarding the Corporation's accounting matters and shall perform such other duties as the Board of Directors, the Chief Executive Officer, the Chief Financial Officer or these Bylaws may from time to time prescribe.

Section 14. Secretary. The Secretary shall give, or cause to be given, notice of all meetings of the stockholders and directors and all other notices required by law or by these Bylaws, and in case of his or her absence or refusal or neglect so to do, any such notice may be given by any person thereunto directed by the Chairman of the Board of Directors, the Chief Executive Officer, the directors or stockholders, upon whose request the meeting is called as provided in these Bylaws. He or she shall record all the proceedings of the meetings of the Board of Directors, any committees thereof and the stockholders of the Corporation in a book to be kept for that purpose, and shall perform such other duties as may be assigned to him or her by the Board of Directors, the Chairman of the Board of Directors or the Chief Executive Officer. He or she shall have the custody of the seal of the Corporation and shall affix the same to all instruments requiring it, when authorized by the

Board of Directors, the Chairman of the Board of Directors or the Chief Executive Officer, and attest the same.

Section 15. Assistant Treasurers, Assistant Controllers and Assistant Secretaries. Any Assistant Treasurers, Assistant Controllers and Assistant Secretaries shall perform such duties as the Board of Directors, the Chief Executive Officer, the Chief Financial Officer, the Treasurer, Chief Accounting Officer, Secretary or these Bylaws may from time to time prescribe. An Assistant Treasurer, Assistant Controller or Assistant Secretary need not be an officer of the Corporation and shall not be deemed an officer of the Corporation unless so designated by the Board of Directors.

Section 16. Bank Accounts. In addition to such bank accounts as may be authorized in the usual manner by resolution of the Board of Directors, the Chief Financial Officer or the Treasurer, with approval of the Chief Executive Officer, may authorize such bank accounts to be opened or maintained in the name and on behalf of the Corporation as the Treasurer shall deem necessary or appropriate; provided, however, that payments from such bank accounts are to be made upon and according to the check of the Corporation as shall be specified in the written instructions of the Chief Financial Officer or the Treasurer or Assistant Treasurer of the Corporation with the approval of the Chief Executive Officer.

ARTICLE V

Stock

Section 1. Form of Certificates. Every holder of stock in the Corporation shall be entitled to have a certificate signed, in the name of the Corporation (i) by the Chairman of the Board of Directors, the Chief Executive Officer or a President or a Vice President and (ii) by the Treasurer, an Assistant Treasurer, the Secretary or an Assistant Secretary of the Corporation, certifying the number of shares owned by him or her in the Corporation.

Section 2. Signatures. Where a certificate is countersigned by (a) a transfer agent other than the Corporation or its employee, or (b) a registrar other than the Corporation or its employee, any other signature on the certificate may be a facsimile. In case any officer, transfer agent or registrar who has signed or whose facsimile signature has been placed upon a certificate shall have ceased to be such officer, transfer agent or registrar before such certificate is issued, it may be issued by the Corporation with the same effect as if he were such officer, transfer agent or registrar at the date of issue.

Section 3. Lost Certificates. The Board of Directors may direct a new certificate to be issued in place of any certificate theretofore issued by the Corporation alleged to have been lost, stolen or destroyed, upon the making of an affidavit of that fact by the person claiming the certificate of stock to be lost, stolen or destroyed. When authorizing such issue of a new certificate, the Board of Directors may, in its discretion and as a condition precedent to the issuance thereof, require the owner of such lost, stolen or destroyed certificate, or his or her legal representative, to advertise the same in such manner

as the Board of Directors shall require and/or to give the Corporation a bond in such sum as it may direct as indemnity against any claim that may be made against the Corporation with respect to the certificate alleged to have been lost, stolen or destroyed.

Section 4. Transfers. Except as otherwise prescribed by applicable law or by the Amended and Restated Certificate of Incorporation of the Corporation, and subject to any transfer restrictions applicable thereto and conspicuously noted on the stock certificate, stock of the Corporation shall be transferable in the manner prescribed in these Bylaws. Transfers of stock shall be made on the books of the Corporation only by the person named in the certificate or by such person's duly authorized attorney appointed by a power of attorney duly executed and filed with the Secretary of the Corporation or a transfer agent of the Corporation, and upon surrender of the certificate or certificates for such stock properly endorsed. Every certificate exchanged, returned or surrendered shall be marked "Canceled", with the date of cancellation, by the Secretary or an Assistant Secretary of the Corporation or the transfer agent thereof. No transfer of stock shall be valid as against the Corporation, its stockholders or creditors for any purpose until it shall have been entered in the stock records of the Corporation by an entry showing from and to whom transferred.

Section 5. Transfer Agent and Registrar. The Board of Directors may appoint one or more transfer agents and one or more registrars and may require all certificates for shares to bear the manual or facsimile signature or signatures of any of them.

Section 6. Record Date. In order that the Corporation may determine the stockholders entitled to (i) notice of or to vote at any meeting of the stockholders or any adjournment thereof, (ii) unless otherwise provided in the Amended and Restated Certificate of Incorporation of the Corporation, express consent to corporate action by written consent without a meeting, (iii) receive payment of any dividend or other distribution or allotment of any rights, or entitled to exercise any rights in respect of any change, conversion or exchange of stock, or (iv) for the purpose of any other lawful action, the Board of Directors may fix a record date, which shall not precede the date upon which the resolution fixing the record date is adopted by the Board of Directors and which record date shall, unless otherwise required by law, not be: (a) in the case of clause (i) above, more than 60 nor less than ten days before the date of such meeting, (b) in the case of clause (ii) above, more than ten days after the date upon which the resolution fixing the record date was adopted by the Board of Directors and (c) in the case of clauses (iii) and (iv), more than 60 days prior to such action. If no record date is fixed: (x) the record date for determining stockholders entitled to notice of or to vote at a meeting of the stockholders shall be at the close of business on the day next preceding the day on which notice is given, or if notice is waived, at the close of business on the day next preceding the day on which the meeting is held; (y) the record date for determining stockholders entitled to express consent to corporate action in writing without a meeting (unless otherwise provided in the Amended and Restated Certificate of Incorporation of the Corporation), when no prior action by the Board of Directors is required under the General Corporation Law of the State of Delaware, as amended from time to time (the " General Corporation Law "), shall be the first day on which a signed written consent setting forth the action taken or proposed to be taken is delivered to the Corporation by delivery to its registered office in the State of Delaware, its principal place of business or

an officer or agent of the Corporation having custody of the book in which proceedings of meetings of stockholders are recorded; and when prior action by the Board of Directors is required under the General Corporation Law, the record date for determining stockholders entitled to consent to corporate action in writing without a meeting shall be at the close of business on the date on which the Board of Directors adopts the resolution taking such prior action; and (c) the record date for determining stockholders for any other purpose shall be at the close of business on the day on which the Board of Directors adopts the resolution relating thereto. A determination of stockholders of record entitled to notice of or to vote at a meeting of the stockholders shall apply to any adjournment of the meeting; provided, however, that the Board of Directors may fix a new record date for the adjourned meeting.

Section 7. Beneficial Owners. The Corporation shall be entitled to recognize the exclusive right of a person registered on its books as the owner of shares to receive dividends, and to vote as such owner, and to hold liable for calls and assessments a person registered on its books as the owner of shares, and shall not be bound to recognize any equitable or other claim to or interest in such share or shares on the part of any other person, whether or not it shall have express or other notice thereof, except as otherwise provided by law.

Section 8. Regulations. Except as otherwise provided by applicable law or in the Amended and Restated Certificate of Incorporation of the Corporation, the Board of Directors shall have the power and authority to make all such rules and regulations as it may deem expedient concerning the issue, transfer, registration, cancellation and replacement of certificates representing stock of the Corporation.

ARTICLE VI
Notices

Section 1. Notices. Whenever written notice is required by law, the Amended and Restated Certificate of Incorporation or these Bylaws, to be given to any director or stockholder, such notice may be given by mail, addressed to such director or stockholder, at his address as it appears on the records of the Corporation, with postage thereon prepaid, and such notice shall be deemed to be given at the time when the same shall be deposited in the United States mail. Written notice may also be given personally or by facsimile transmission or other electronic transmission. Any notice given by facsimile transmission shall be deemed to have been given upon confirmation of receipt by the addressee.

Section 2. Waivers of Notice. Whenever any notice is required by law, the Amended and Restated Certificate of Incorporation or these Bylaws, to be given to any director or stockholder, a waiver thereof in writing, signed by the person or persons entitled to said notice, whether before or after the time stated therein, shall be deemed equivalent thereto. Attendance of a director or a stockholder in person or by proxy at such a meeting shall constitute a waiver of notice to such director or stockholder of such meeting, except when such director or stockholder attends the meeting for the express purpose of objecting

at the beginning of the meeting to the transaction of any business because the meeting is not lawfully called or convened.

ARTICLE VII

General Provisions

Section 1. Books and Records. The books and records of the Corporation may be kept at such places within or without the State of Delaware as the Board of Directors may from time to time determine.

Section 2. Dividends. Subject to the provisions of the Amended and Restated Certificate of Incorporation, if any, dividends upon the capital stock of the Corporation may be declared by the Board of Directors at any meeting, and may be paid in cash or in property. Before payment of any dividend, there may be set aside out of any funds of the Corporation available for dividends such sum or sums as the Board of Directors from time to time, in its absolute discretion, deems proper as a reserve or reserves to meet contingencies, or for equalizing dividends, or for repairing or maintaining any property of the Corporation or for any proper purpose, and the Board of Directors may modify or abolish any such reserve.

Section 3. Disbursements. All checks or demands for money and notes of the Corporation shall be signed by such officer or officers or such other person or persons as the Board of Directors may from time to time designate.

Section 4. Fiscal Year. The fiscal year of the Corporation shall end on December 31 of each year, or such other period as may be adopted by resolution of the Board of Directors.

Section 5. Corporate Seal. The corporate seal shall have inscribed thereon the name of the Corporation, the year of its organization and the words "Corporate Seal, Delaware." The seal may be used by causing it or a facsimile thereof to be impressed or affixed or reproduced or otherwise.

Section 6. Saving Clause. These Bylaws are subject to the provisions of the Amended and Restated Certificate of Incorporation of the Corporation and applicable law. If any provision of these Bylaws is inconsistent with the Amended and Restated Certificate of Incorporation of the Corporation or the General Corporation Law, such provision shall be invalid only to the extent of such conflict, and such conflict shall not affect the validity of any other provision of these Bylaws.

ARTICLE VIII

Indemnification

Section 1. Power to Indemnify in Actions, Suits or Proceedings other than those by or in the Right of the Corporation. Subject to Section 3 of this Article VIII, the Corporation shall indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of the Corporation) by reason of the fact that he or she is or was a director, officer, employee or agent of the Corporation, or is or was serving at the request of the Corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust, employee benefit plan or other enterprise, against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by him or her in connection with such action, suit or proceeding if he or she acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the best interests of the Corporation, and, with respect to any criminal action or proceeding, had no reasonable cause to believe his or her conduct was unlawful. The termination of any action, suit or proceeding by judgment, order, settlement, conviction, or upon a plea of nolo contendere or its equivalent, shall not, of itself, create a presumption that the person did not act in good faith and in a manner which he or she reasonably believed to be in or not opposed to the best interests of the Corporation, and, with respect to any criminal action or proceeding, had reasonable cause to believe that his or her conduct was unlawful.

Section 2. Power to Indemnify in Actions, Suits or Proceedings by or in the Right of the Corporation. Subject to Section 3 of this Article VIII, the Corporation shall indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action or suit by or in the right of the Corporation to procure a judgment in its favor by reason of the fact that he or she is or was a director, officer, employee or agent of the Corporation, or is or was serving at the request of the Corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust, employee benefit plan or other enterprise against expenses (including attorneys' fees) actually and reasonably incurred by him or her in connection with the defense or settlement of such action or suit if he or she acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the best interests of the Corporation; except that no indemnification shall be made in respect of any claim, issue or matter as to which such person shall have been adjudged to be liable to the Corporation unless and only to the extent that the court in which such action or suit was brought shall determine upon application that, despite the adjudication of liability but in view of all the circumstances of the case, such person is fairly and reasonably entitled to indemnity for such expenses which the court shall deem proper.

Section 3. Authorization of Indemnification. Any indemnification under this Article VIII (unless ordered by a court) shall be made by the Corporation only as authorized in the specific case upon a determination that indemnification of the director, officer, employee or agent is proper in the circumstances because he or she has met the applicable standard of conduct set forth in Section 1 or Section 2 of this Article VIII, as the case may be. Such determination shall be made (a) by a majority vote of the directors who are not parties to such action, suit or proceeding, even though less than a quorum, (b) by a

committee of such directors designated by majority vote of such directors, even though less than a quorum, (c) if there are no such directors, or if such directors so direct, by independent legal counsel in a written opinion or (d) by the stockholders. To the extent, however, that a director, officer, employee or agent of the Corporation has been successful on the merits or otherwise in defense of any action, suit or proceeding described above, or in defense of any claim, issue or matter therein, he or she shall be indemnified against expenses (including attorneys' fees) actually and reasonably incurred by him or her in connection therewith, without the necessity of authorization in the specific case.

Section 4. Good Faith Defined. For purposes of any determination under Section 3 of this Article VIII, a person shall be deemed to have acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the best interests of the Corporation, or, with respect to any criminal action or proceeding, to have had no reasonable cause to believe his or her conduct was unlawful, if his or her action is based on good faith reliance on the records or books of account of the Corporation or another enterprise, or on information supplied to him by the officers of the Corporation or another enterprise in the course of their duties, or on the advice of legal counsel for the Corporation or another enterprise or on information or records given or reports made to the Corporation or another enterprise by an independent certified public accountant or by an appraiser or other expert selected with reasonable care by the Corporation or another enterprise. The term "another enterprise" as used in this Section 4 shall mean any other corporation or any partnership, joint venture, trust, employee benefit plan or other enterprise of which such person is or was serving at the request of the Corporation as a director, officer, employee or agent. The provisions of this Section 4 shall not be deemed to be exclusive or to limit in any way the circumstances in which a person may be deemed to have met the applicable standard of conduct set forth in Section 1 or 2 of this Article VIII, as the case may be.

Section 5. Indemnification by a Court. Notwithstanding any contrary determination in the specific case under Section 3 of this Article VIII, and notwithstanding the absence of any determination thereunder, any director, officer, employee or agent may apply to any court of competent jurisdiction in the State of Delaware for indemnification to the extent otherwise permissible under Section 1 and 2 of this Article VIII. The basis of such indemnification by a court shall be a determination by such court that indemnification of the director, officer, employee or agent is proper in the circumstances because he or she has met the applicable standards of conduct set forth in Sections 1 or 2 of this Article VIII, as the case may be. Neither a contrary determination in the specific case under Section 3 of this Article VIII nor the absence of any determination thereunder shall be a defense to such application or create a presumption that the director, officer, employee or agent seeking indemnification has not met any applicable standard of conduct. Notice of any application for indemnification pursuant to this Section 5 shall be given to the Corporation promptly upon the filing of such application. If successful, in whole or in part, the director, officer, employee or agent seeking indemnification shall also be entitled to be paid the expense of prosecuting such application.

Section 6. Expenses Payable in Advance. Expenses incurred in defending or investigating a threatened or pending action, suit or proceeding shall be paid

by the Corporation in advance of the final disposition of such action, suit or proceeding upon receipt of an undertaking by or on behalf of such director, officer, employee or agent to repay such amount if it shall ultimately be determined that he is not entitled to be indemnified by the Corporation as authorized in this Article VIII.

Section 7. Nonexclusivity of Indemnification and Advancement of Expenses. The indemnification and advancement of expenses provided by or granted pursuant to this Article VIII shall not be deemed exclusive of any other rights to which those seeking indemnification or advancement of expenses may be entitled under any Bylaw, agreement, contract, vote of stockholders or disinterested directors or pursuant to the direction (howsoever embodied) of any court of competent jurisdiction or otherwise, both as to action in his or her official capacity and as to action in another capacity while holding such office, it being the policy of the Corporation that indemnification of the persons specified in Sections 1 and 2 of this Article VIII shall be made to the fullest extent permitted by law. The provisions of this Article VIII shall not be deemed to preclude the indemnification of any person who is not specified in Section 1 or 2 of this Article VIII but whom the Corporation has the power or obligation to indemnify under the provisions of the Delaware General Corporation Law or otherwise.

Section 8. Insurance. The Corporation may purchase and maintain insurance on behalf of any person who is or was a director, officer, employee or agent of the Corporation, or is or was serving at the request of the Corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust, employee benefit plan or other enterprise against any liability asserted against him or her and incurred by him or her in any such capacity, or arising out of his or her status as such, whether or not the Corporation would have the power or the obligation to indemnify him or her against such liability under the provisions of this Article VIII.

Section 9. Certain Definitions. For purposes of this Article VIII, references to “the Corporation” shall include, in addition to the resulting corporation, any constituent corporation (including any constituent of a constituent) absorbed in a consolidation or merger which, if its separate existence had continued, would have had power and authority to indemnify its directors, officers, employees or agents, so that any person who is or was a director, officer, employee or agent of such constituent corporation, or is or was serving at the request of such constituent corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust, employee benefit plan or other enterprise, shall stand in the same position under the provisions of this Article VIII with respect to the resulting or surviving corporation as he or she would have with respect to such constituent corporation if its separate existence had continued. For purposes of this Article VIII, references to “fines” shall include any excise taxes assessed on a person with respect to an employee benefit plan; and references to “serving at the request of the Corporation” shall include any service as a director, officer, employee or agent of the Corporation which imposes duties on, or involves services by, such director, officer, employee or agent with respect to an employee benefit plan, its participants or beneficiaries; and a person who acted in good faith and in a manner he or she reasonably believed to be in the interest of the participants and beneficiaries of an employee benefit plan shall be

deemed to have acted in a manner “not opposed to the best interests of the Corporation” as referred to in this Article VIII.

Section 10. Survival of Indemnification and Advancement of Expenses. The indemnification and advancement of expenses provided by, or granted pursuant to, this Article VIII shall, unless otherwise provided when authorized or ratified, continue as to a person who has ceased to be a director, officer, employee or agent and shall inure to the benefit of the heirs, executors and administrators of such a person.

Section 11. Limitation on Indemnification. Notwithstanding anything contained in this Article VIII to the contrary, except for proceedings to enforce rights to indemnification (which shall be governed by Section 5 of this Article VIII), the Corporation shall not be obligated to indemnify any director, officer, employee or agent in connection with a proceeding (or part thereof) initiated by such person unless such proceeding (or part thereof) was authorized or consented to by the Board of Directors of the Corporation.

ARTICLE IX

Amendments

Section 1. Amendment, etc. The Board of Directors shall have the power to adopt, amend or repeal Bylaws. Bylaws adopted by the Board of Directors may be repealed or changed, and new Bylaws made, by the stockholders, and the stockholders may prescribe that any Bylaw made by them shall not be altered, amended or repealed by the Board of Directors.

EXHIBIT 10.1

Executive Performance Equity Plan
GRANT NOTICE

This Notice sets forth the economic terms of a Performance Unit Award granted under the First Solar, Inc. 2015 Omnibus Incentive Compensation Plan. This Grant Notice, together with the Performance Unit Award Agreement Form Perf Unit-006 (the terms of which are incorporated into this Grant Notice by reference), constitute the Award Agreement for this Performance Unit Award under the Executive Performance Equity Plan. Capitalized terms used in this Grant Notice that are not defined in this Grant Notice have the meanings as used or defined in the Performance Unit Award Agreement, or if not defined therein, the Plan.

Participant:	[●]
Target # Performance Units (“Performance Units” for Stub Period):	[●]
Target # Performance Units (“Performance Units” for Full Period):	[●]
Grant Date:	March 7, 2017

Performance Period:

Stub Grant: January 1, 2017 – December 31, 2018 Vesting:

Performance Level Metrics	Threshold	Target	Maximum	Weighting
Operating Expense per Watt plus Module Production Cost per Watt as of December 31, 2018	0.498	0.457	0.444	80%
Creation of a Board Approved Strategic Marketing Plan for Series 6 production*		<12/31/2017		20%

*Because of the binary nature of this metric, no upward discretion is applicable.

Full Grant: January 1, 2017 - December 31, 2019 Vesting:

Performance Level	Threshold (50%)	Target (100%)	Maximum (200%)	Weighting
Operating Expense per Watt plus Module Production Cost per Watt as of December 31, 2019	0.347	0.325	0.293	100%

The final number of Performance Units actually awarded following the end of the Performance Period, if any, shall be based on the attainment of specified levels of the performance measures set forth above, and may range between 0% and 200% of the number of target Performance Units. More specifically, except as the Committee may otherwise determine, 0% of the target Performance Shares shall be earned upon less than threshold performance achievement; 50% of the target Performance Units shall be earned upon threshold performance achievement, 100% of target Performance Units shall be earned upon target performance achievement and 200% of target Performance Units shall be earned upon maximum performance achievement (with linear interpolation between threshold and target performance achievement and between target and maximum performance achievement for the Operating Expense per Watt plus Module Cost per Watt as of December 31, 2018/December 31, 2019). Each Performance Unit represents the right to receive one share of the Company's common stock, no par value per share ("Share").

In determining achievement of the Vesting Conditions, the performance metrics may be adjusted to exclude the negative impact and to include the positive impact of extraordinary, unusual or infrequently occurring events as determined by the Committee.

This Award shall not vest unless Participant is continuously employed by the Company or an Affiliate through the end of the Performance Period and is employed by the Company on the settlement date, unless Participant is eligible for a *pro rata* settlement as provided for in the Forfeiture section below.

Vesting Acceleration upon a Change in Control:	Upon the occurrence of a Change in Control (as defined in the Change of Control Severance Agreement between the Participant and the Company ("CIC Agreement") that occurs during the Performance Period in which the acquirer assumes or substitutes the Performance Units, the Performance Units shall remain eligible to vest in accordance with the vesting provisions described above; provided, however, if, within the 24-month period following such Change in Control, the Participant's employment with the Company and its Affiliates is terminated (1) by the Company or one of its Affiliates without Cause (as defined in the CIC Agreement) or (2) by the Participant for Good Reason (as defined in the CIC Agreement), then the number of Performance Units determined based on actual achievement of the applicable Vesting Conditions as of the date of termination, shall become vested as of the date of termination of employment, and promptly settled within 60 days following such date. This Award shall expire and be forfeited with respect to the unvested portion thereof if the applicable Vesting Conditions are not satisfied as of such date of termination. Upon the occurrence of a Change in Control in which the acquirer does not assume or substitute the Performance Units, the Performance Units shall be deemed immediately vested at the target level, and shall be promptly settled within 60 days following the Change in Control. For the avoidance of doubt, the provisions of Section 3 "Impact of a Change in Control on Equity Compensation Awards" in the CIC Agreement shall not apply to this Award.
Forfeiture:	This Award shall be forfeited, with no consideration, upon termination of the Participant's employment unless such termination of employment occurs on account of Participant's death or "Disability", in which case Participant shall be eligible for a pro rata settlement as described in the Settlement section below. For this purpose, "Disability" shall have the meaning ascribed to such term (or term of similar import) in the employment agreement between Participant and the Company, as in effect at the relevant time. Further, this Award shall expire and be forfeited with respect to the unvested portion thereof if the threshold Vesting Condition is not satisfied with respect to the Performance Period. For greater clarity, notwithstanding anything to the contrary herein, in the Performance Unit Award Agreement, or in any employment or other agreement between Participant and the Company, no portion of this Award shall accelerate upon termination of the Participant's employment other than as expressly provided in this Grant Notice.

Settlement of Award:	Full Settlement: Where Participant is eligible for full settlement of this Award or any portion thereof, as soon as administratively practicable but in any event within the first 60 days of the calendar year following the end of the Performance Period, the Participant shall receive one fully vested Share for each vested Performance Unit. Pro Rata Settlement: Where Participant is eligible for a pro rata settlement of this Award or any portion thereof because Participant experienced a termination of employment described above prior to the settlement date, such pro rata portion shall be determined by multiplying (i) the number of Performance Units that would have vested based on actual achievement of the Vesting Conditions had Participant remained employed until the settlement date by (ii) a fraction, (a) the numerator of which is the number of days Participant was employed by the Company during the Performance Period up to the date of termination, and (b) the denominator of which is the number of days from and after the first day of the Performance Period through the end of the Performance Period, rounding up to the next whole Performance Unit. Such pro rata portion of the Performance Units shall be settled in Shares, on a one-for-one basis, as soon as administratively practicable but in any event within the first 60 days of the calendar year following the end of the Performance Period. If Participant becomes eligible for a pro rata settlement of this Award, then upon pro rata settlement the remainder of this Award shall be forfeited.
Settlement of Taxes	Vesting and settlement of the Performance Units shall be subject to Participant satisfying any applicable federal, state and local tax withholding obligations and non-U.S. tax withholding obligations. Unless otherwise provided by the Company, the amount of any withholding taxes in respect of the Performance Units shall be satisfied by having the Company withhold from the number of Performance Units payable to Participant under this Award a number of Shares having a fair market value equal to such withholding tax liability at the applicable minimum statutory rate.

Representation Regarding Material Nonpublic Information

By signing below, I represent that, as of the date set forth below, I am not aware of any material, non-public information with respect to First Solar or any of its securities.

________________________________ ________________________________

Signature Date

EXHIBIT 31.01

CERTIFICATION OF CHIEF EXECUTIVE OFFICER
PURSUANT TO 15 U.S.C. SECTION 7241, AS
ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Mark R. Widmar, certify that:

1 I have reviewed the Quarterly Report on Form 10-Q of First Solar, Inc., a Delaware corporation, for the period ended March 31, 2017 , as filed with the Securities and Exchange Commission;

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: May 4, 2017

/s/ MARK R. WIDMAR

Mark R. Widmar
Chief Executive Officer

EXHIBIT 31.02

CERTIFICATION OF CHIEF FINANCIAL OFFICER
PURSUANT TO 15 U.S.C. SECTION 7241, AS
ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Alexander R. Bradley, certify that:

1 I have reviewed the Quarterly Report on Form 10-Q of First Solar, Inc., a Delaware corporation, for the period ended March 31, 2017 , as filed with the Securities and Exchange Commission;

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: May 4, 2017

/s/ ALEXANDER R. BRADLEY
Alexander R. Bradley
Chief Financial Officer

EXHIBIT 32.01

CERTIFICATION OF
CHIEF EXECUTIVE OFFICER AND CHIEF FINANCIAL OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report on Form 10-Q of First Solar, Inc., a Delaware corporation, for the period ended March 31, 2017 , as filed with the Securities and Exchange Commission, each of the undersigned officers of First Solar, Inc. certifies pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to his respective knowledge:

(1) the quarterly report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and

(2) the information contained in the quarterly report fairly presents, in all material respects, the financial condition and results of operations of First Solar, Inc. for the periods presented therein.

Date: May 4, 2017

/s/ MARK R. WIDMAR
Mark R. Widmar
Chief Executive Officer

Date: May 4, 2017

/s/ ALEXANDER R. BRADLEY
Alexander R. Bradley
Chief Financial Officer