FIRST SOLAR, INC.
Form 10-Q
October 26, 2018

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 September 30, 2018
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 every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes [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 [ ]	

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 October 19, 2018, 104,814,977 shares of the registrant's common stock, $0.001 par value per share, were outstanding.

Table of Contents

FIRST SOLAR, INC. AND SUBSIDIARIES

FORM 10-Q FOR THE QUARTERLY PERIOD ENDED SEPTEMBER 30, 2018

TABLE OF CONTENTS

Table of Contents

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 September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Net sales	$676,220	$1,087,026	$1,552,803	$2,602,143
Cost of sales	547,093	795,226	1,258,936	2,115,266
Gross profit	129,127	291,800	293,867	486,877
Operating expenses:				
Selling, general and administrative	33,539	50,546	125,519	147,702
Research and development	22,390	20,850	63,084	64,990
Production start-up	14,723	12,624	76,159	22,155
Restructuring and asset impairments	—	791	—	39,108
Total operating expenses	70,652	84,811	264,762	273,955
Operating income	58,475	206,989	29,105	212,922
Foreign currency loss, net	(2,383)	(3,968)	(2,478)	(6,166)
Interest income	16,456	8,392	45,145	22,364
Interest expense, net	(3,198)	(4,149)	(14,445)	(19,692)
Other (loss) income, net	(5,971)	2,018	7,635	25,180
Income before taxes and equity in earnings	63,379	209,282	64,962	234,608
Income tax (expense) benefit	(2,396)	(7,580)	(7,857)	26,769
Equity in earnings, net of tax	(3,233)	4,045	35,105	5,462
Net income	$57,750	$205,747	$92,210	$266,839
Net income per share:				
Basic	$0.55	$1.97	$0.88	$2.56
Diluted	$0.54	$1.95	$0.87	$2.54
Weighted-average number of shares used in per share calculations:				
Basic	104,804	104,432	104,711	104,287
Diluted	106,163	105,660	106,211	104,889

See accompanying notes to these condensed consolidated financial statements.

Table of Contents

FIRST SOLAR, INC. AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(In thousands)
(Unaudited)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Net income	$57,750	$205,747	$92,210	$266,839
Other comprehensive (loss) income:				
Foreign currency translation adjustments	1,793	4,717	(7,252)	5,320
Unrealized (loss) gain on marketable securities and restricted investments, net of tax of $273, $(23), $3,424, and $(373)	(6,688)	1,511	(32,106)	1,244
Unrealized (loss) gain on derivative instruments, net of tax of $(22), $291, $(1,000), and $1,291	(39)	(61)	1,928	(2,513)
Other comprehensive (loss) income	(4,934)	6,167	(37,430)	4,051
Comprehensive income	$52,816	$211,914	$54,780	$270,890

See accompanying notes to these condensed consolidated financial statements.

Table of Contents

FIRST SOLAR, INC. AND SUBSIDIARIES
CONDENSED CONSOLIDATED BALANCE SHEETS
(In thousands, except share data)
(Unaudited)

	September 30, 2018	December 31, 2017
ASSETS		
Current assets:		
Cash and cash equivalents	$ 1,434,883	$ 2,268,534
Marketable securities	1,295,049	720,379
Accounts receivable trade, net	141,699	211,797
Accounts receivable, unbilled and retainage	421,134	174,608
Inventories	296,038	172,370
Balance of systems parts	51,448	28,840
Project assets	28,978	77,931
Notes receivable, affiliate	21,308	20,411
Prepaid expenses and other current assets	195,552	157,902
Total current assets	3,886,089	3,832,772
Property, plant and equipment, net	1,671,129	1,154,537
PV solar power systems, net	310,493	417,108
Project assets	463,624	424,786
Deferred tax assets, net	108,636	51,417
Restricted cash and investments	341,125	424,783
Equity method investments	3,192	217,230
Goodwill	14,462	14,462
Intangibles assets, net	74,585	80,227
Inventories	124,266	113,277
Note receivable, affiliate	—	48,370
Other assets	96,954	85,532
Total assets	$ 7,094,555	$ 6,864,501
LIABILITIES AND STOCKHOLDERS’ EQUITY		
Current liabilities:		
Accounts payable	$ 154,602	$ 120,220
Income taxes payable	49,941	19,581
Accrued expenses	433,117	366,827
Current portion of long-term debt	2,618	13,075
Deferred revenue	215,900	81,816
Other current liabilities	12,006	48,757
Total current liabilities	868,184	650,276
Accrued solar module collection and recycling liability	133,965	166,609
Long-term debt	463,485	380,465
Other liabilities	457,964	568,454
Total liabilities	1,923,598	1,765,804
Commitments and contingencies		
Stockholders’ equity:		
Common stock, $0.001 par value per share; 500,000,000 shares authorized; 104,814,322 and 104,468,460 shares issued and outstanding at September 30, 2018 and December 31, 2017, respectively	105	104
Additional paid-in capital	2,816,585	2,799,107

Accumulated earnings	2,389,438	2,297,227
Accumulated other comprehensive (loss) income	(35,171)	2,259
Total stockholders’ equity	5,170,957	5,098,697
Total liabilities and stockholders’ equity	$ 7,094,555	$ 6,864,501

See accompanying notes to these condensed consolidated financial statements.

Table of Contents

FIRST SOLAR, INC. AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)
(Unaudited)

	Nine Months Ended September 30, 2018	2017
Cash flows from operating activities:		
Net income	$92,210	$266,839
Adjustments to reconcile net income to cash provided by operating activities:		
Depreciation, amortization and accretion	89,192	89,552
Impairments and net losses on disposal of long-lived assets	5,379	33,171
Share-based compensation	26,787	25,527
Equity in earnings, net of tax	(35,105)	(5,462)
Distributions received from equity method investments	12,394	17,024
Remeasurement of monetary assets and liabilities	6,837	(12,464)
Deferred income taxes	(55,732)	(38,499)
Gains on sales of marketable securities and restricted investments	(19,472)	(49)
Liabilities assumed by customers for the sale of systems	(116,456)	—
Other, net	1,891	2,572
Changes in operating assets and liabilities:		
Accounts receivable, trade, unbilled and retainage	(178,723)	(328,556)
Prepaid expenses and other current assets	(34,321)	35,818
Inventories and balance of systems parts	(158,311)	178,562
Project assets and PV solar power systems	50,294	969,264
Other assets	(12,694)	(16,453)
Income tax receivable and payable	6,302	6,416
Accounts payable	28,591	(21,198)
Accrued expenses and other liabilities	181,328	(289,919)
Accrued solar module collection and recycling liability	(31,701)	(5,426)
Net cash (used in) provided by operating activities	(141,310)	906,719
Cash flows from investing activities:		
Purchases of property, plant and equipment	(610,620)	(315,129)
Purchases of marketable securities and restricted investments	(1,102,440)	(478,324)
Proceeds from sales and maturities of marketable securities and restricted investments	627,106	386,309
Proceeds from sales of equity method investments	247,595	—
Payments received on notes receivable, affiliates	48,459	478
Other investing activities	(5,823)	2,707
Net cash used in investing activities	(795,723)	(403,959)
Cash flows from financing activities		
Repayment of long-term debt	(18,937)	(23,683)
Proceeds from borrowings under long-term debt, net of discounts and issuance costs	174,594	158,739
Payments of tax withholdings for restricted shares	(10,517)	(5,114)
Proceeds from commercial letters of credit	—	43,025
Contingent consideration payments and other financing activities	(1,957)	(21,361)
Net cash provided by financing activities	143,183	151,606
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(12,454)	9,420
Net (decrease) increase in cash, cash equivalents and restricted cash	(806,304)	663,786
Cash, cash equivalents and restricted cash, beginning of the period	2,330,476	1,415,690

Cash, cash equivalents and restricted cash, end of the period	$1,524,172	$2,079,476
Supplemental disclosure of noncash investing and financing activities:		
Property, plant and equipment acquisitions funded by liabilities	$144,928	$128,450
Sale of system previously accounted for as sale-leaseback financing	$31,992	$—
Acquisitions currently or previously funded by liabilities and contingent consideration	$8,622	$12,212
Accrued interest capitalized to long-term debt	$2,716	$16,786

See accompanying notes to these condensed consolidated financial statements.

4

Table of Contents

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 in this Quarterly Report have been prepared in accordance with generally accepted accounting principles 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. Certain prior period balances have been reclassified to conform to the current period presentation.

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. Despite our intention to establish accurate estimates and reasonable assumptions, actual results could differ materially from such estimates and assumptions. Operating results for the three and nine months ended September 30, 2018 are not necessarily indicative of the results that may be expected for the year ending December 31, 2018 or for any other period. The condensed consolidated balance sheet at December 31, 2017 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, 2017 included in our Annual Report on Form 10-K, which has been filed with the SEC.

Unless expressly stated or the context otherwise requires, the terms “the Company,” “we,” “us,” “our,” and “First Solar” refer t First Solar, Inc. and its consolidated subsidiaries, and the term “condensed consolidated financial statements” refers to the accompanying unaudited condensed consolidated financial statements contained in this Quarterly Report.

2. Recent Accounting Pronouncements

In February 2018, the Financial Accounting Standard Board (“FASB”) issued ASU 2018-02, Income Statement – Reporting Comprehensive Income (Topic 220) – Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income, to allow entities to reclassify the income tax effects of tax reform legislation commonly referred to as the Tax Cuts and Jobs Act (the “Tax Act”) on items within accumulated other comprehensive income to retained earnings. ASU 2018-02 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 2018-02 will have on our consolidated financial statements and associated disclosures.

In August 2017, the FASB issued ASU 2017-12, Derivatives and Hedging (Topic 815) – Targeted Improvements to Accounting for Hedging Activities, to simplify certain aspects of hedge accounting for both non-financial and financial risks and better align the recognition and measurement of hedge results with an entity’s risk management activities. ASU 2017-12 also amends certain presentation and disclosure requirements for hedging activities and changes how an entity assesses hedge effectiveness. ASU 2017-12 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 2017-12 will have on our consolidated financial statements and associated disclosures.

5

Table of Contents

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. The adoption of ASU 2016-16 in the first quarter of 2018 did not have a significant impact 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 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 and disclosing key information about leasing transactions. 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. In July 2018, the FASB issued ASU 2018-11, Leases (Topic 842) – Targeted Improvements, which provided an optional transition method to apply the new lease requirements through a cumulative-effect adjustment in the period of adoption.

We expect to adopt ASU 2016-02 in the first quarter of 2019 using this optional transition method. We also expect to elect certain practical expedients permitted under the transition guidance, which, among other things, allow us to not reassess prior conclusions related to contracts containing leases or lease classification. We are currently evaluating the impact ASU 2016-02 will have on our consolidated financial statements and associated disclosures and designing the related processes and internal controls. We expect the adoption to have a significant impact on our consolidated balance sheet through the recognition of right-of-use assets and lease liabilities primarily related to real estate arrangements but do not expect the adoption to have a significant impact on our results of operations or cash flows.

3. 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 plans. Accordingly, we expect to upgrade and replace our legacy manufacturing fleet over the next several years 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 $39.1 million during the nine months ended September 30, 2017, which included (i) $25.7 million of charges, primarily related to net losses on the disposition of previously impaired Series 4 and Series 5 manufacturing equipment, (ii) $6.8 million of severance benefits to terminated employees, and (iii) $6.6 million of net miscellaneous charges, primarily related to contract terminations, the write-off of operating supplies, and other Series 4 manufacturing exit costs. During the three months ended September 30, 2017, we incurred net charges of $0.8 million, primarily as a result of net losses on the disposition of the aforementioned manufacturing equipment. Substantially all amounts associated with these restructuring and asset impairment charges related to our modules segment and were classified as “Restructuring and asset impairments” on our condensed consolidated statements of operations, and substantially all of the associated liabilities were paid or settled as of December 31, 2017.

Table of Contents

4. Cash, Cash Equivalents, and Marketable Securities

We consider highly liquid investments with original maturities of three months or less at the time of purchase to be cash equivalents with the exception of time deposits, which are presented as marketable securities. Cash, cash equivalents, and marketable securities consisted of the following at September 30, 2018 and December 31, 2017 (in thousands):

	September 30, 2018	December 31, 2017
Cash and cash equivalents:		
Cash	$ 1,234,270	$ 2,142,949
Money market funds	200,613	125,585
Total cash and cash equivalents	1,434,883	2,268,534
Marketable securities:		
Foreign debt	314,213	238,858
Foreign government obligations	117,975	152,850
U.S. debt	25,047	73,671
Time deposits	837,814	255,000
Total marketable securities	1,295,049	720,379
Total cash, cash equivalents, and marketable securities	$ 2,729,932	$ 2,988,913

The following table provides a reconciliation of cash, cash equivalents, and restricted cash reported within our condensed consolidated balance sheets as of September 30, 2018 and December 31, 2017 to the total of such amounts as presented in the condensed consolidated statement of cash flows (in thousands):

	Balance Sheet Line Item	September 30, 2018	December 31, 2017
Cash and cash equivalents	Cash and cash equivalents	$ 1,434,883	$ 2,268,534
Restricted cash – current (1)	Prepaid expenses and other current assets	6,777	11,120
Restricted cash – noncurrent (1)	Restricted cash and investments	82,512	50,822
Total cash, cash equivalents, and restricted cash		$ 1,524,172	$ 2,330,476

(1) See Note 5. “Restricted Cash and Investments” to our condensed consolidated financial statements for discussion of our “Restricted cash” arrangements.

During the nine months ended September 30, 2018, we sold marketable securities for proceeds of $10.8 million and realized gains of less than $0.1 million on such sales. During the nine months ended September 30, 2017, we sold marketable securities for proceeds of $118.3 million and realized gains of less than $0.1 million on such sales. See Note 8. “Fair Value Measurements” to our condensed consolidated financial statements for information about the fair value of our marketable securities.

The following tables summarize the unrealized gains and losses related to our available-for-sale marketable securities, by major security type, as of September 30, 2018 and December 31, 2017 (in thousands):

	As of September 30, 2018			
	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
Foreign debt	$317,246	$ 8	$ 3,041	$314,213
Foreign government obligations	118,993	—	1,018	117,975
U.S. debt	25,054	2	9	25,047

Time deposits	837,814	—	—	837,814
Total	$1,299,107	$ 10	$ 4,068	$1,295,049

7

Table of Contents

	As of December 31, 2017			
	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
Foreign debt	$240,643	$ 3	$ 1,788	$238,858
Foreign government obligations	153,999	—	1,149	152,850
U.S. debt	73,746	—	75	73,671
Time deposits	255,000	—	—	255,000
Total	$723,388	$ 3	$ 3,012	$720,379

As of September 30, 2018, we identified 16 investments totaling $224.8 million that had been in a loss position for a period of time greater than 12 months with unrealized losses of $2.5 million. As of December 31, 2017, we identified 16 investments totaling $210.3 million that had been in a loss position for a period of time greater than 12 months with unrealized losses of $1.9 million. Such 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.

The following tables show unrealized losses and fair values for those marketable securities that were in an unrealized loss position as of September 30, 2018 and December 31, 2017, aggregated by major security type and the length of time the marketable securities have been in a continuous loss position (in thousands):

	As of September 30, 2018					
	In Loss Position for Less Than 12 Months		In Loss Position for 12 Months or Greater		Total	
	Fair Value	Unrealized Losses	Fair Value	Unrealized Losses	Fair Value	Unrealized Losses
Foreign debt	$179,522	$ 1,513	$106,871	$ 1,528	$286,393	$ 3,041
Foreign government obligations	—	—	117,975	1,018	117,975	1,018
U.S. debt	10,043	9	—	—	10,043	9
Total	$189,565	$ 1,522	$224,846	$ 2,546	$414,411	$ 4,068

	As of December 31, 2017					
	In Loss Position for Less Than 12 Months		In Loss Position for 12 Months or Greater		Total	
	Fair Value	Unrealized Losses	Fair Value	Unrealized Losses	Fair Value	Unrealized Losses
Foreign debt	$119,869	$ 735	$88,919	$ 1,053	$208,788	$ 1,788
Foreign government obligations	31,467	289	121,383	860	152,850	1,149
U.S. debt	73,671	75	—	—	73,671	75
Total	$225,007	$ 1,099	$210,302	$ 1,913	$435,309	$ 3,012

The contractual maturities of our marketable securities as of September 30, 2018 were as follows (in thousands):

	Fair Value
One year or less	$1,059,555
One year to two years	118,724
Two years to three years	116,770
Total	$1,295,049

8

Table of Contents

5. Restricted Cash and Investments

Restricted cash and investments consisted of the following at September 30, 2018 and December 31, 2017 (in thousands):

	September 30, 2018	December 31, 2017
Restricted cash	$ 82,512	$ 50,822
Restricted investments	258,613	373,961
Total restricted cash and investments (1)	$ 341,125	$ 424,783

———————

(1) There was an additional $6.8 million and $11.1 million of restricted cash included within "Prepaid expenses and other current assets" at September 30, 2018 and December 31, 2017, respectively.

At September 30, 2018 and December 31, 2017, 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 specific debt financings. See Note 11. "Commitments and Contingencies" to our condensed consolidated financial statements for further discussion related to our letters of credit.

At September 30, 2018 and December 31, 2017, 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. 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. No incremental funding was required in 2018 as substantially all of our module sales in the prior year were not covered under our solar module collection and recycling program. To ensure that amounts previously funded will be available in the future regardless of 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. Trust funds may be disbursed for qualified module collection and recycling costs (including capital and facility related recycling costs), payments to customers for assuming collection and recycling obligations, and reimbursements of any overfunded amounts. Investments in the trust must meet certain investment quality criteria comparable to highly rated government or agency bonds.

During the nine months ended September 30, 2018, we sold certain restricted investments for proceeds of $101.6 million and realized gains of $19.5 million on such sales, and withdrew the funds from the trust as a reimbursement of overfunded amounts. See Note 8. "Fair Value Measurements" to our condensed consolidated financial statements for information about the fair value of our restricted investments.

The following tables summarize the unrealized gains and losses related to our restricted investments, by major security type, as of September 30, 2018 and December 31, 2017 (in thousands):

	As of September 30, 2018			
	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
Foreign government obligations	$105,661	$ 48,950	$ —	$154,611
U.S. government obligations	116,717	229	12,944	104,002
Total	$222,378	$ 49,179	$ 12,944	$258,613

9

Table of Contents

	As of December 31, 2017			
	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
Foreign government obligations	$127,436	$ 62,483	$ —	$189,919
U.S. government obligations	174,624	12,944	3,526	184,042
Total	$302,060	$ 75,427	$ 3,526	$373,961

As of September 30, 2018, we identified six restricted investments totaling $100.4 million that had been in a loss position for a period of time greater than 12 months with unrealized losses of $12.9 million. As of December 31, 2017, we identified six restricted investments totaling $107.7 million that had been in a loss position for a period of time greater than 12 months with unrealized losses of $3.5 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 investments to be other-than-temporarily impaired.

As of September 30, 2018, the contractual maturities of our restricted investments were between 11 years and 18 years.

6. Consolidated Balance Sheet Details

Accounts receivable trade, net

Accounts receivable trade, net consisted of the following at September 30, 2018 and December 31, 2017 (in thousands):

	September 30, 2018	December 31, 2017
Accounts receivable trade, gross	$ 142,934	$ 213,776
Allowance for doubtful accounts	(1,235)	(1,979)
Accounts receivable trade, net	$ 141,699	$ 211,797

At September 30, 2018 and December 31, 2017, $11.0 million and $16.8 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 September 30, 2018 and December 31, 2017 (in thousands):

	September 30, 2018	December 31, 2017
Accounts receivable, unbilled	$ 410,513	$ 172,594
Retainage	10,621	2,014
Accounts receivable, unbilled and retainage	$ 421,134	$ 174,608

Table of Contents

Inventories

Inventories consisted of the following at September 30, 2018 and December 31, 2017 (in thousands):

	September 30, 2018	December 31, 2017
Raw materials	$ 210,219	$ 148,968
Work in process	27,703	14,085
Finished goods	182,382	122,594
Inventories	$ 420,304	$ 285,647
Inventories – current	$ 296,038	$ 172,370
Inventories – noncurrent	$ 124,266	$ 113,277

Prepaid expenses and other current assets

Prepaid expenses and other current assets consisted of the following at September 30, 2018 and December 31, 2017 (in thousands):

	September 30, 2018	December 31, 2017
Prepaid expenses	$ 72,441	$ 41,447
Prepaid income taxes	38,813	31,944
Indirect tax receivables	27,680	26,553
Restricted cash	6,777	11,120
Derivative instruments	5,494	4,303
Other current assets	44,347	42,535
Prepaid expenses and other current assets	$ 195,552	$ 157,902

Property, plant and equipment, net

Property, plant and equipment, net consisted of the following at September 30, 2018 and December 31, 2017 (in thousands):

	September 30, 2018	December 31, 2017
Land	$ 14,431	$ 8,181
Buildings and improvements	481,529	424,266
Machinery and equipment	1,736,460	1,059,103
Office equipment and furniture	171,456	157,512
Leasehold improvements	49,102	48,951
Construction in progress	468,735	641,263
Property, plant and equipment, gross	2,921,713	2,339,276
Accumulated depreciation	(1,250,584)	(1,184,739)
Property, plant and equipment, net	$ 1,671,129	$ 1,154,537

Depreciation of property, plant and equipment was $29.4 million and $72.6 million for the three and nine months ended September 30, 2018, respectively, and $22.4 million and $71.1 million for the three and nine months ended September 30, 2017, respectively.

11

Table of Contents

PV solar power systems, net

Photovoltaic ("PV") solar power systems, consisted of the following at September 30, 2018 and December 31, 2017 (in thousands):

	September 30, 2018	December 31, 2017
PV solar power systems, gross	$ 341,343	$ 451,045
Accumulated depreciation	(30,850)	(33,937)
PV solar power systems, net	$ 310,493	$ 417,108

Depreciation of PV solar power systems was $3.5 million and $11.8 million for the three and nine months ended September 30, 2018, respectively, and $5.1 million and $14.9 million for the three and nine months ended September 30, 2017, respectively.

Capitalized interest

The cost of constructing project assets includes interest costs incurred during the construction period. The components of interest expense and capitalized interest were as follows during the three and nine months ended September 30, 2018 and 2017 (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Interest cost incurred	$(5,023)	$(4,775)	$(19,080)	$(20,630)
Interest cost capitalized – project assets	1,825	626	4,635	938
Interest expense, net	$(3,198)	$(4,149)	$(14,445)	$(19,692)

Project assets

Project assets consisted of the following at September 30, 2018 and December 31, 2017 (in thousands):

	September 30, 2018	December 31, 2017
Project assets – development costs, including project acquisition and land costs	$ 246,147	$ 250,590
Project assets – construction costs	246,455	252,127
Project assets	$ 492,602	$ 502,717
Project assets – current	$ 28,978	$ 77,931
Project assets – noncurrent	$ 463,624	$ 424,786

Table of Contents

Other assets

Other assets consisted of the following at September 30, 2018 and December 31, 2017 (in thousands):

	September 30, 2018	December 31, 2017
Deferred rent	$ 26,359	$ 26,760
Indirect tax receivables	26,720	15,253
Notes receivable (1)	9,306	10,495
Income taxes receivable	4,428	4,454
Other	30,141	28,570
Other assets	$ 96,954	$ 85,532

(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 bears interest at 8.0% per annum, payable quarterly, with the full amount due in December 2026. As of September 30, 2018 and December 31, 2017, the balance outstanding on the credit facility was €7.0 million ($8.1 million and $8.4 million, respectively).

Goodwill

Goodwill for the relevant reporting unit consisted of the following at September 30, 2018 and December 31, 2017 (in thousands):

	December 31, 2017	Acquisitions (Impairments)	September 30, 2018
Modules	$ 407,827	$ —	$ 407,827
Accumulated impairment losses	(393,365)	—	(393,365)
Goodwill	$ 14,462	$ —	$ 14,462

Intangibles assets, net

Intangibles assets, net primarily include developed technologies from prior business acquisitions, certain power purchase agreements ("PPAs") acquired after the associated PV solar power systems were placed in service, and our internally-generated intangible assets, substantially all of which are patents on technologies related to our products and production processes. 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. During the nine months ended September 30, 2018, $17.3 million of in-process research and development related to our prior acquisition of Enki Technology, Inc. was reclassified to developed technology and began amortizing over its useful life of 10 years.

The following tables summarize our intangible assets at September 30, 2018 and December 31, 2017 (in thousands):

	September 30, 2018		
	Gross Amount	Accumulated Amortization	Net Amount
Developed technology	$95,964	$ (30,819)	$65,145
Power purchase agreements	6,486	(567)	5,919
Patents	7,068	(3,547)	3,521
Intangibles assets, net	$109,518	$ (34,933)	$74,585

Table of Contents

	December 31, 2017		
	Gross Amount	Accumulated Amortization	Net Amount
Developed technology	$76,959	$ (24,140)	$52,819
Power purchase agreements	6,486	(324)	6,162
Patents	7,068	(3,077)	3,991
In-process research and development	17,255	—	17,255
Intangibles assets, net	$107,768	$ (27,541)	$80,227

Amortization expense for our intangible assets was $2.5 million and $7.4 million for the three and nine months ended September 30, 2018, respectively, and $2.1 million and $6.2 million for the three and nine months ended September 30, 2017, respectively.

Accrued expenses

Accrued expenses consisted of the following at September 30, 2018 and December 31, 2017 (in thousands):

	September 30, 2018	December 31, 2017
Accrued project assets	$ 135,991	$ 55,834
Accrued property, plant and equipment	106,661	133,433
Accrued inventory	54,191	24,830
Accrued compensation and benefits	41,761	73,985
Product warranty liability (1)	33,595	28,767
Other	60,918	49,978
Accrued expenses	$ 433,117	$ 366,827

(1) See Note 11. “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 September 30, 2018 and December 31, 2017 (in thousands):

	September 30, 2018	December 31, 2017
Contingent consideration (1)	$ 6,372	$ 6,162
Derivative instruments	1,602	27,297
Financing liability (2)	—	5,161
Indemnification liabilities (1)	—	2,876
Other	4,032	7,261
Other current liabilities	$ 12,006	$ 48,757

(1) See Note 11. “Commitments and Contingencies” to our condensed consolidated financial statements for discussion of our “Contingent consideration” and “Indemnification liabilities” arrangements.

(2) See Note 9. “Equity Method Investments” to our condensed consolidated financial statements for discussion of the financing liabilities associated with our leaseback of the Maryland Solar project.

Table of Contents

Other liabilities

Other liabilities consisted of the following at September 30, 2018 and December 31, 2017 (in thousands):

	September 30, 2018	December 31, 2017
Product warranty liability (1)	$ 191,809	$ 195,507
Other taxes payable	83,789	89,724
Transition tax liability (2)	82,733	93,233
Deferred revenue	47,677	63,257
Derivative instruments	5,962	5,932
Contingent consideration (1)	2,250	3,153
Financing liability (3)	—	29,822
Commercial letter of credit liability (1)	—	43,396
Other	43,744	44,430
Other liabilities	$ 457,964	$ 568,454

(1) See Note 11. “Commitments and Contingencies” to our condensed consolidated financial statements for discussion of our “Product warranty liability,” “Contingent consideration,” and “Commercial letter of credit liability” arrangements.

(2) See Note 14. “Income Taxes” to our condensed consolidated financial statements for discussion of the one-time transition tax on accumulated earnings of foreign subsidiaries as a result of Tax Act.

(3) See Note 9. “Equity Method Investments” to our condensed consolidated financial statements for discussion of the financing liabilities associated with our leaseback of the Maryland Solar project.

Table of Contents

7. 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) income" 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 8. "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 September 30, 2018 and December 31, 2017 (in thousands):

	September 30, 2018		
	Prepaid Expenses and Other Current Assets	Other Current Liabilities	Other Liabilities
Derivatives designated as hedging instruments:			
Foreign exchange forward contracts	$5	$ —	$ —
Total derivatives designated as hedging instruments	$5	$ —	$ —
Derivatives not designated as hedging instruments:			
Foreign exchange forward contracts	$5,489	$ 1,554	$ —
Interest rate swap contracts	—	48	5,962
Total derivatives not designated as hedging instruments	$5,489	$ 1,602	$ 5,962
Total derivative instruments	$5,494	$ 1,602	$ 5,962

	December 31, 2017		
	Prepaid Expenses and Other Current Assets	Other Current Liabilities	Other Liabilities
Derivatives designated as hedging instruments:			
Foreign exchange forward contracts	$252	$ 13,240	$ —
Total derivatives designated as hedging instruments	$252	$ 13,240	$ —
Derivatives not designated as hedging instruments:			
Foreign exchange forward contracts	$4,051	$ 14,057	$ —
Interest rate swap contracts	—	—	5,932
Total derivatives not designated as hedging instruments	$4,051	$ 14,057	$ 5,932
Total derivative instruments	$4,303	$ 27,297	$ 5,932

Table of Contents

The following table presents the pretax 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 nine months ended September 30, 2018 and 2017 (in thousands):

	Foreign Exchange Forward Contracts
Balance in accumulated other comprehensive (loss) income at December 31, 2017	$ (1,723)
Amounts recognized in other comprehensive (loss) income	(3,884)
Amounts reclassified to earnings impacting:	
Net sales	1,698
Cost of sales	212
Foreign currency loss, net	5,448
Other (loss) income, net	(546)
Balance in accumulated other comprehensive (loss) income at September 30, 2018	$ 1,205
Balance in accumulated other comprehensive (loss) income at December 31, 2016	$ 2,556
Amounts recognized in other comprehensive (loss) income	(3,993)
Amounts reclassified to earnings impacting:	
Other (loss) income, net	189
Balance in accumulated other comprehensive (loss) income at September 30, 2017	$ (1,248)

We recorded no amounts related to ineffective portions of our derivative instruments designated as cash flow hedges during the three and nine months ended September 30, 2018 and 2017. During the three and nine months ended September 30, 2018, we recognized unrealized gains of $1.0 million and $0.5 million, respectively, related to amounts excluded from effectiveness testing for our foreign exchange forward contracts designated as cash flow hedges within "Other (loss) income, net." During the three and nine months ended September 30, 2017, we recognized unrealized gains of $0.7 million and $0.5 million, respectively, related to amounts excluded from effectiveness testing for our foreign exchange forward contracts designated as cash flow hedges within "Other (loss) income, net."

The following table presents gains and losses related to derivative instruments not designated as hedges affecting our condensed consolidated statements of operations for the three and nine months ended September 30, 2018 and 2017 (in thousands):

		Three Months Ended September 30,		Nine Months Ended September 30,	
	Income Statement Line Item	2018	2017	2018	2017
Foreign exchange forward contracts	Foreign currency loss, net	$7,098	$6,934	$13,477	$(16,724)
Interest rate swap contracts	Interest expense, net	883	167	(1,284)	(5,515)

Interest Rate Risk

We use 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 August 2018, FS Japan Project 14 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 Mashiko Credit Agreement (as defined in Note 10. "Debt" to our condensed consolidated financial statements). Such swap had an initial notional value of ¥5.5 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 0.820%. The notional amount of the interest rate swap contract is scheduled to proportionately adjust with the scheduled draws and principal payments on the

Table of Contents

underlying hedged debt. As of September 30, 2018, the notional value of the interest rate swap contract was ¥5.8 billion ($51.5 million). This derivative instrument does not qualify for accounting as a cash flow hedge in accordance with Accounting Standards Codification ("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."

In May 2018, FS NSW Project No 1 Finco Pty Ltd, our indirectly wholly-owned subsidiary and project financing company, entered into various interest rate swap contracts to hedge the floating rate construction loan facility and a portion of the floating rate term loan facility under the associated project's Beryl Credit Facility (as defined in Note 10. "Debt" to our condensed consolidated financial statements). The swaps had an initial aggregate notional value of AUD 42.4 million and, depending on the loan facility being hedged, entitled the project to receive one-month or three-month floating Bank Bill Swap Bid ("BBSY") interest rates while requiring the project to pay fixed rates of 2.0615% or 3.2020%. The notional amounts of the interest rate swap contracts are scheduled to proportionately adjust with the scheduled draws and principal payments on the underlying hedged debt. As of September 30, 2018, the aggregate notional value of the interest rate swap contracts was AUD 64.8 million ($46.8 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 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 10. "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 BBSY interest rate while requiring the project to pay a fixed rate of 3.13%. The notional amounts of the interest rate swap contracts are scheduled to proportionately adjust with the scheduled draws and principal payments on the underlying hedged debt. In September 2018, we completed the sale of our Manildra project, and its interest rate swap contracts and outstanding construction loan balance were assumed by the customer. As of December 31, 2017, the aggregate notional value of the interest rate swap contracts was AUD 68.1 million ($53.2 million). These derivative instruments did 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 were 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 10. "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 TIBOR plus 0.75% interest rate while requiring the project to pay a fixed rate of 1.482%. The notional amount of the interest rate swap contract is scheduled to proportionately adjust with the scheduled draws and principal payments on the underlying hedged debt. As of September 30, 2018 and December 31, 2017, the notional value of the interest rate swap contract was ¥16.0 billion ($140.7 million) and ¥12.8 billion ($113.4 million), respectively. 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."

Table of Contents

Foreign Currency 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 September 30, 2018 and December 31, 2017, these foreign exchange forward contracts hedged our forecasted cash flows for periods up to nine months. 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) income" 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 September 30, 2018 and December 31, 2017. As of September 30, 2018 and December 31, 2017, 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):

	September 30, 2018	
Currency	Notional Amount	USD Equivalent
Australian dollar	AUD 8.8	$6.4

	December 31, 2017	
Currency	Notional Amount	USD Equivalent
Indian rupee	INR 4,730.0	$74.1
Euro	€15.7	$18.8

In the following 12 months, we expect to reclassify to earnings $1.2 million of net unrealized gains related to these forward contracts that are included in "Accumulated other comprehensive (loss) income" at September 30, 2018 as we realize the earnings effects 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, deferred taxes, payables, accrued expenses, 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 also 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 loss, net" on our condensed consolidated statements of operations. These contracts mature at various dates within the next three months.

Table of Contents

As of September 30, 2018 and December 31, 2017, 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):

	September 30, 2018		
Transaction	Currency	Notional Amount	USD Equivalent
Purchase	Australian dollar	AUD 20.5	$14.8
Sell	Australian dollar	AUD 13.1	$9.5
Purchase	Brazilian real	BRL 8.5	$2.1
Sell	Brazilian real	BRL 3.5	$0.9
Sell	Canadian dollar	CAD 2.9	$2.2
Sell	Chilean peso	CLP 2,101.0	$3.2
Purchase	Euro	€122.3	$141.6
Sell	Euro	€214.3	$248.2
Sell	Indian rupee	INR 1,111.3	$15.3
Purchase	Japanese yen	¥3,580.4	$31.5
Sell	Japanese yen	¥24,343.4	$214.5
Purchase	Malaysian ringgit	MYR 39.6	$9.6
Sell	Malaysian ringgit	MYR 140.9	$34.0
Sell	Mexican peso	MXN 37.3	$2.0
Purchase	Singapore dollar	SGD 3.8	$2.8
Sell	South African rand	ZAR 37.8	$2.7

	December 31, 2017		
Transaction	Currency	Notional Amount	USD Equivalent
Purchase	Australian dollar	AUD 12.7	$9.9
Sell	Australian dollar	AUD 56.8	$44.4
Sell	Canadian dollar	CAD 1.7	$1.4
Sell	Chilean peso	CLP 10,180.9	$16.6
Purchase	Chinese yuan	CNY 13.8	$2.1
Purchase	Euro	€151.4	$181.6
Sell	Euro	€193.2	$231.7
Purchase	Indian rupee	INR 645.7	$10.1
Sell	Indian rupee	INR 8,376.0	$131.1
Sell	Japanese yen	¥23,922.2	$212.6
Purchase	Malaysian ringgit	MYR 31.0	$7.7
Sell	Malaysian ringgit	MYR 336.5	$83.1
Sell	Singapore dollar	SGD 3.1	$2.3
Purchase	South African rand	ZAR 12.5	$1.0
Sell	South African rand	ZAR 61.1	$5.0

Table of Contents

8. 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:

- Cash Equivalents. At September 30, 2018 and December 31, 2017, our cash equivalents consisted of money market funds. We value our money market cash equivalents using observable inputs that reflect quoted prices for securities with identical characteristics, and accordingly, we classify the valuation techniques that use these inputs as Level 1.

- Marketable Securities and Restricted Investments. At September 30, 2018 and December 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. 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 standing in these fair value measurements.

- Derivative Assets and Liabilities. At September 30, 2018 and December 31, 2017, our derivative assets and liabilities consisted of foreign exchange forward contracts involving major currencies and 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. As 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 September 30, 2018 and December 31, 2017, the fair value measurements of our assets and liabilities measured on a recurring basis were as follows (in thousands):

		Fair Value Measurements at Reporting Date Using		
	September 30, 2018	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets:				
Cash equivalents:				
Money market funds	$ 200,613	$ 200,613	$ —	$ —
Marketable securities:				
Foreign debt	314,213	—	314,213	—
Foreign government obligations	117,975	—	117,975	—
U.S. debt	25,047	—	25,047	—
Time deposits	837,814	837,814	—	—
Restricted investments	258,613	—	258,613	—

Derivative assets	5,494	—	5,494	—	
Total assets	$ 1,759,769	$1,038,427	$ 721,342	$	—
Liabilities:					
Derivative liabilities	$ 7,564	$—	$ 7,564	$	—

21

Table of Contents

	December 31, 2017	Fair Value Measurements at Reporting Date Using Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets:				
Cash equivalents:				
Money market mutual funds	$ 125,585	$125,585	$ —	$ —
Marketable securities:				
Foreign debt	238,858	—	238,858	—
Foreign government obligations	152,850	—	152,850	—
U.S. debt	73,671	—	73,671	—
Time deposits	255,000	255,000	—	—
Restricted investments	373,961	—	373,961	—
Derivative assets	4,303	—	4,303	—
Total assets	$ 1,224,228	$380,585	$ 843,643	$ —
Liabilities:				
Derivative liabilities	$ 33,229	$—	$ 33,229	$ —

Fair Value of Financial Instruments

At September 30, 2018 and December 31, 2017, the carrying values and fair values of our financial instruments not measured at fair value were as follows (in thousands):

	September 30, 2018		December 31, 2017	
	Carrying Value	Fair Value	Carrying Value	Fair Value
Assets:				
Notes receivable – noncurrent	$9,306	$9,264	$10,495	$10,516
Notes receivable, affiliate – current	21,308	23,638	20,411	23,317
Note receivable, affiliate – noncurrent	—	—	48,370	47,441
Liabilities:				
Long-term debt, including current maturities (1)	$478,101	$491,243	$406,388	$416,486

(1) Excludes capital lease obligations and unamortized discounts and issuance costs.

The carrying values in our condensed consolidated balance sheets of our 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. The fair value measurements for our notes receivable and long-term debt are considered Level 2 measurements 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, cash equivalents, 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, cash equivalents, 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 advance payments, parent guarantees, bank guarantees, surety bonds, or commercial letters of credit.

9. Equity Method Investments

From time to time, we may enter into investments or other strategic arrangements to expedite our penetration of certain markets and establish relationships with potential customers. We may also enter into strategic arrangements with customers or other entities to maximize the value of particular projects. Some of these arrangements may 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. The following table summarizes our equity method investments as of September 30, 2018 and December 31, 2017 (in thousands):

	September 30, 2018	December 31, 2017
8point3 Operating Company, LLC	$ —	$ 199,477
Clean Energy Collective, LLC	—	6,521
Other	3,192	11,232
Equity method investments	$ 3,192	$ 217,230

8point3 Operating Company, LLC

In June 2015, 8point3 Energy Partners LP (the "Partnership"), a limited partnership formed by First Solar and SunPower Corporation ("SunPower," and together with First Solar, 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. After the formation of the Partnership, the Sponsors, from time to time, sold interests in solar projects to the Partnership, which owns and operates such portfolio of solar energy generation projects.

In February 2018, we entered into an agreement with CD Clean Energy and Infrastructure V JV, LLC, an equity fund managed by Capital Dynamics, Inc. ("Capital Dynamics") and certain other co-investors and other parties, pursuant to which such parties agreed, subject to the satisfaction of certain conditions, to acquire our interests in the Partnership and its subsidiaries. In June 2018, we completed the sale of such interests and received net proceeds of $240.0 million after the payment of fees, expenses, and other amounts.

We accounted for our interest in OpCo, a subsidiary of the Partnership, under the equity method of accounting as we were able to exercise significant influence over the Partnership due to our representation on the board of directors of its general partner and certain of our associates serving as officers of its general partner. During the nine months ended September 30, 2018, we recognized equity in earnings, net of tax, of $39.7 million from our investment in OpCo, including a gain of $40.3 million, net of tax, for the sale of our interests in the Partnership and its subsidiaries. During the three and nine months ended September 30, 2017, we recognized equity in earnings, net of tax, of $6.3 million and $10.1 million, respectively, from our investment in OpCo. During the nine months ended September 30, 2018 and 2017, we received distributions from OpCo of $12.4 million and $17.0 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 certain continuing involvement with the project, we accounted for the leaseback agreement as a financing transaction until the sale of our interests in the Partnership and its subsidiaries in June 2018. Following the sale of such

Table of Contents

interests, the Maryland Solar project qualified for sale-leaseback accounting, and we recognized net revenue of $32.0 million from the sale of the project. As of December 31, 2017, the financing obligation associated with the leaseback was $35.0 million.

In March 2018, FirstEnergy Solutions Corp. (“FirstEnergy”), the off-taker for the Maryland Solar PPA, filed for chapter 11 bankruptcy protection, and in April 2018, FirstEnergy filed a motion for entry of an order authorizing FirstEnergy and its affiliates to reject certain energy contracts, including the Maryland Solar PPA. In August 2018, the bankruptcy court granted the motion. As a result, we expect to sell energy generated by the Maryland Solar project on an open contract basis during the remaining lease term.

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 and received a $50.0 million promissory note as part of the consideration for the sale. In June 2018, the outstanding balance on the promissory note of $47.8 million was repaid in conjunction with the sale of our interests in the Partnership and its subsidiaries. As of December 31, 2017, the balance outstanding on the promissory note was $48.4 million.

We provide operations and maintenance (“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 nine months ended September 30, 2018, we recognized revenue of $5.6 million for such O&M services prior to the sale of our interests in the Partnership and its subsidiaries. During the three and nine months ended September 30, 2017, we recognized revenue of $2.9 million and $8.3 million, respectively, for such O&M services.

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 to purchase additional ownership interests in CEC.

In addition to our equity investment, we also entered into a term loan agreement and a convertible loan agreement with CEC in November 2014 and February 2016, respectively. In August 2017, we amended the terms of the warrant and loan agreements to (i) fix the exercise price of the warrant at our initial investment price per unit, (ii) extend the maturity of the loans to November 2018, (iii) allow for the capitalization of certain accrued and future interest on the term loan, (iv) require mandatory prepayments on the term loan under certain conditions, and (v) fix the interest rate of the term loan at 16% per annum, payable semiannually. The interest rate of the convertible loan remained at 10% per annum, payable at maturity. As of September 30, 2018 and December 31, 2017, the balance outstanding on the term loan was $16.4 million and $15.8 million, respectively, and the balance outstanding on the convertible loan was $4.6 million.

During the three months ended September 30, 2018, the board of managers of CEC evaluated restructuring proposals to address certain liquidity issues that were adversely affecting its operations. These proposals provided for the subsequent repayment of CEC’s outstanding debt, including our loan agreements, but indicated that a decrease in the value of our investment in CEC may have occurred that was other than temporary. As a result, we recorded an impairment loss of $3.5 million, net of tax, for our remaining investment in CEC. In addition, we recorded an impairment loss of $1.8 million in “Other (loss) income, net” for our warrant to purchase additional ownership interests in CEC.

CEC is considered a variable interest entity, and our 26% 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 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

Table of Contents

basis difference resulting from the cost of our investment differing from our proportionate share of CEC's equity. During the three and nine months ended September 30, 2018, we recognized losses, net of tax, of $3.1 million and $4.3 million, respectively, from our investment in CEC, including the impairment of our remaining investment described above. During the three and nine months ended September 30, 2017, we recognized losses, net of tax, of $0.5 million and $2.7 million, respectively, from our investment in CEC.

10. Debt

Our long-term debt consisted of the following at September 30, 2018 and December 31, 2017 (in thousands):

Loan Agreement	Currency	Balance (USD) September 30, 2018	Balance (USD) December 31, 2017
Revolving Credit Facility	USD	$—	$ —
Luz del Norte Credit Facilities	USD	188,053	185,675
Ishikawa Credit Agreement	JPY	153,453	121,446
Japan Credit Facility	JPY	—	10,710
Tochigi Credit Facility	JPY	185	—
Mashiko Credit Agreement	JPY	56,522	—
Marikal Credit Facility	INR	—	7,384
Hindupur Credit Facility	INR	—	18,722
Anantapur Credit Facility	INR	15,561	—
Tungabhadra Credit Facility	INR	13,467	—
Manildra Credit Facility	AUD	—	62,451
Beryl Credit Facility	AUD	50,860	—
Capital lease obligations	Various	84	156
Long-term debt principal		478,185	406,544
Less: unamortized discounts and issuance costs		(12,082)	(13,004)
Total long-term debt		466,103	393,540
Less: current portion		(2,618)	(13,075)
Noncurrent portion		$463,485	$ 380,465

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 borrowing capacity of $500.0 million, which we may increase to $750.0 million, subject to certain conditions. Borrowings under the credit facility bear interest at (i) London Interbank Offered Rate ("LIBOR"), adjusted for Eurocurrency reserve requirements, plus a margin of 2.00% or (ii) a base rate as defined in the credit agreement plus a margin of 1.00% depending on the type of borrowing requested. These margins are also subject to adjustment depending on our consolidated leverage ratio. We had no borrowings under our Revolving Credit Facility as of September 30, 2018 and December 31, 2017 and had issued $63.4 million and $57.5 million, respectively, of letters of credit using availability under the facility. Loans and letters of credit issued under the Revolving Credit Facility are jointly and severally guaranteed by First Solar, Inc.; 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.

25

Table of Contents

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 0.30% per annum, based on the average daily unused commitments under the facility, which 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%. Our Revolving Credit Facility matures in July 2022.

Luz del Norte Credit Facilities

In August 2014, Parque Solar Fotovoltaico Luz del Norte SpA ("Luz del Norte"), our indirect wholly-owned subsidiary and project company, 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 (the "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 March 2017, we repaid the remaining balance on the VAT facility.

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 September 30, 2018 and December 31, 2017, the balance outstanding on the OPIC loans was $140.9 million and $139.0 million, respectively. As of September 30, 2018 and December 31, 2017, the balance outstanding on the IFC loans was $47.2 million and $46.6 million, respectively. The OPIC and IFC loans are secured by liens over all of Luz del Norte's assets and by a pledge of all of the equity interests in the entity.

Ishikawa Credit Agreement

In December 2016, FS Japan Project 12 GK ("Ishikawa"), our indirect wholly-owned subsidiary and project company, entered into a credit agreement (the "Ishikawa Credit Agreement") with Mizuho Bank, Ltd. for aggregate borrowings up to ¥27.3 billion ($240.6 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 ($211.5 million) senior loan facility, a ¥2.1 billion ($18.5 million) consumption tax facility, and a ¥1.2 billion ($10.6 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 September 30, 2018 and December 31, 2017, the balance outstanding on the credit agreement was $153.5 million and $121.4 million, respectively.

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 ($35.2 million) for the development and construction of utility-scale PV solar power plants in Japan (the "Japan Credit Facility"). In September 2018, First Solar Japan GK renewed the facility for an additional one-year period until September 2019. The facility is guaranteed by First Solar, Inc. and secured by pledges of certain projects' cash accounts and other rights in the projects. As of September 30, 2018 and December 31, 2017, the balance outstanding on the facility was zero and $10.7 million, respectively.

26

Tochigi Credit Facility

In June 2017, First Solar Japan GK, our wholly-owned subsidiary, entered into a term loan facility with Mizuho Bank, Ltd. for borrowings up to ¥7.0 billion ($61.7 million) for the development of utility-scale PV solar power plants in Japan (the “Tochigi Credit Facility”). The majority of the facility is available to be drawn by or before November 2018, and the aggregate term loan facility matures in March 2021. The facility is guaranteed by First Solar, Inc. and secured by pledges of certain of First Solar Japan GK’s accounts. As of September 30, 2018 and December 31, 2017, the balance outstanding on the term loan facility was $0.2 million and zero, respectively.

Mashiko Credit Agreement

In March 2018, FS Japan Project 14 GK (“Mashiko”), our indirect wholly-owned subsidiary and project company, entered into a credit agreement (the “Mashiko Credit Agreement”) with Mizuho Bank, Ltd. for aggregate borrowings up to ¥9.2 billion ($81.1 million) for the development and construction of a 19 MW PV solar power plant located in Tochigi, Japan. The credit agreement consists of a ¥8.1 billion ($71.4 million) senior loan facility, a ¥0.7 billion ($6.2 million) consumption tax facility, and a ¥0.4 billion ($3.5 million) letter of credit facility. The senior loan facility matures in March 2037, and the consumption tax facility matures in September 2020. The credit agreement is secured by pledges of Mashiko’s assets, accounts, material project documents, and ownership interests. As of September 30, 2018, the balance outstanding on the credit agreement was $56.5 million.

Marikal Credit Facility

In March 2015, FS India Devco Private Limited (previously known as Marikal Solar Parks Private Limited), our indirect wholly-owned subsidiary and project company, entered into a term loan facility (the “Marikal Credit Facility”) with Axis Bank as administrative agent for aggregate borrowings up to INR 0.5 billion ($7.5 million) for the development and construction of a 10 MW PV solar power plant located in Telangana, India. In May 2018, we repaid the remaining $6.8 million principal balance on the term loan facility. As of December 31, 2017, the balance outstanding on the term loan facility was $7.4 million.

Hindupur Credit Facility

In November 2016, Hindupur Solar Parks Private Limited, our indirect wholly-owned subsidiary and project company, entered into a term loan facility (the “Hindupur Credit Facility”) with Yes Bank Limited for borrowings up to INR 4.3 billion ($59.3 million) for costs related to an 80 MW portfolio of PV solar power plants located in Andhra Pradesh, India. The term loan facility had a letter of credit sub-limit of INR 3.2 billion ($44.1 million), which was used for project related costs. In March 2018, we completed the sale of our Hindupur projects, and the outstanding balance of the Hindupur Credit Facility of $17.0 million was assumed by the customer. As of December 31, 2017, we had issued INR 2.9 billion ($40.0 million) of letters of credit under the term loan facility, and the balance outstanding on the term loan facility was $18.7 million.

Anantapur Credit Facility

In March 2018, Anantapur Solar Parks Private Limited, our indirect wholly-owned subsidiary and project company, entered into a term loan facility (the “Anantapur Credit Facility”) with J.P. Morgan Securities India Private Limited for borrowings up to INR 1.2 billion ($16.6 million) for costs related to a 20 MW PV solar power plant located in Karnataka, India. The term loan facility matures in February 2021 and is secured by a letter of credit issued by JPMorgan Chase Bank, N.A., Singapore, in favor of the lender. Such letter of credit is secured by a cash deposit placed by First Solar FE Holdings Pte. Ltd. As of September 30, 2018, the balance outstanding on the term loan facility was $15.6 million.

27

Table of Contents

Tungabhadra Credit Facility

In March 2018, Tungabhadra Solar Parks Private Limited, our indirect wholly-owned subsidiary and project company, entered into a term loan facility (the “Tungabhadra Credit Facility”) with J.P. Morgan Securities India Private Limited for borrowings up to INR 1.0 billion ($13.8 million) for costs related to a 20 MW PV solar power plant located in Karnataka, India. The term loan facility matures in February 2021 and is secured by a letter of credit issued by JPMorgan Chase Bank, N.A., Singapore, in favor of the lender. Such letter of credit is secured by a cash deposit placed by First Solar FE Holdings Pte. Ltd. As of September 30, 2018, the balance outstanding on the term loan facility was $13.5 million.

Manildra Credit Facility

In March 2017, Manildra Finco Pty Ltd, our indirect wholly-owned subsidiary and project financing company, entered into a term loan facility (the “Manildra Credit Facility”) with Société Générale S.A. and The Bank of Tokyo-Mitsubishi UFJ, Ltd. for aggregate borrowings up to AUD 81.7 million ($59.0 million) for costs related to a 49 MW PV solar power plant located in New South Wales, Australia. The credit facility consisted of an AUD 75.7 million ($54.7 million) construction loan facility and an additional AUD 6.0 million ($4.3 million) goods and service tax facility (or “GST facility”) to fund certain taxes associated with the construction of the associated project. In September 2018, we completed the sale of our Manildra project, and the outstanding balance of the Manildra Credit Facility of $56.1 million was assumed by the customer. As of December 31, 2017, the balance outstanding on the term loan facility was $62.5 million.

Beryl Credit Facility

In May 2018, FS NSW Project No 1 Finco Pty Ltd, our wholly-owned subsidiary and project financing company, entered into a term loan facility (the “Beryl Credit Facility”) with MUFG Bank, Ltd.; Société Générale, Hong Kong Branch; and Mizuho Bank, Ltd. for aggregate borrowings up to AUD 146.4 million ($105.7 million) for the development and construction of an 87 MW PV solar power plant located in New South Wales, Australia. The credit facility consists of an AUD 135.4 million ($97.8 million) construction loan facility, an AUD 7.0 million ($5.1 million) GST facility to fund certain taxes associated with the construction of the project, and an AUD 4.0 million ($2.9 million) letter of credit facility. Upon completion of the project’s construction, the construction loan facility will convert to a term loan facility. The term loan facility matures in May 2023, and the GST facility matures in May 2020. 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 September 30, 2018, the balance outstanding on the term loan facility was $50.9 million.

Table of Contents

Variable Interest Rate Risk

Certain of our long-term debt agreements bear interest at prime, LIBOR, TIBOR, BBSY, or equivalent variable rates. An increase in these variable rates would increase the cost of borrowing under our Revolving Credit Facility and certain project specific debt financings. Our long-term debt borrowing rates as of September 30, 2018 were as follows:

Loan Agreement	September 30, 2018
Revolving Credit Facility	4.26%
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%
Tochigi Credit Facility	3-month TIBOR plus 1.0%
Mashiko Credit Agreement	Senior loan facility at 6-month TIBOR plus 0.70% (2) Consumption tax facility at 3-month TIBOR plus 0.5%
Anantapur Credit Facility	INR overnight indexed swap rate plus 1.5%
Tungabhadra Credit Facility	INR overnight indexed swap rate plus 1.5%
Beryl Credit Facility	Construction loan facility at 1-month BBSY plus 1.55% (2) GST facility at 1-month BBSY plus 1.00%
Capital lease obligations	Various

(1) Outstanding balance comprised of $162.0 million of fixed rate loans and $26.1 million of variable rate loans as of September 30, 2018.

(2) We have entered into interest rate swap contracts to hedge portions of these variable rates. See Note 7. “Derivative Financial Instruments” to our condensed consolidated financial statements for additional information.

Future Principal Payments

At September 30, 2018, 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 2018	$—
2019	6,342
2020	33,020
2021	41,462
2022	14,023
Thereafter	383,254
Total long-term debt future principal payments	$478,101

Table of Contents

11. 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 amended and restated Revolving Credit Facility provides us with a sub-limit of $400.0 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 September 30, 2018, we had $63.4 million in letters of credit issued under our Revolving Credit Facility, leaving $336.6 million of availability for the issuance of additional letters of credit. As of September 30, 2018, we also had $0.6 million of bank guarantees and letters of credit under separate agreements that were posted by certain of our foreign subsidiaries and $288.4 million of letters of credit issued under three bilateral facilities, of which $32.4 million was secured with cash. We also had $159.5 million of surety bonds outstanding, leaving $556.9 million of available bonding capacity under our surety lines as of September 30, 2018. The majority of these letters of credit, bank guarantees, and surety bonds supported our systems projects.

In addition to the commercial commitments noted above, we also issued certain commercial letters of credit, also known as letters of undertaking, under our Hindupur Credit Facility as discussed in Note 10. “Debt” to our condensed consolidated financial statements. Such commercial letters of credit represented conditional commitments on the part of the issuing financial institution to provide payment on amounts drawn in accordance with the terms of the individual documents. As part of the financing of the associated systems projects, we presented these commercial letters of credit to other financial institutions, whereby we received immediate funding, and these other financial institutions agreed to settle such letters at a future date. At the time of settlement, the balance of the commercial letters of credit would be included in the balance outstanding of the credit facility. In the periods between the receipt of cash and the subsequent settlement of the commercial letters of credit, we accrued interest on the balance or otherwise accreted any discounted value of the letters to their face value and recorded such amounts as “Interest expense, net” on our condensed consolidated statements of operations. In March 2018, we completed the sale of our Hindupur projects, and the outstanding letters of credit of $43.3 million under the Hindupur Credit Facility were assumed by the customer. As of December 31, 2017, we accrued $43.4 million for contingent obligations associated with such commercial letters of credit. These amounts were classified as “Other liabilities” on our condensed consolidated balance sheets to align with the timing in which we expected to settle such obligations as payments under the associated credit facility.

Supply Agreements

In April 2018, we entered into a supply agreement for the purchase of substrate glass for our PV solar modules. Under the terms of the agreement, we expect to pay approximately $2.4 billion over the supply period, which ends in December 2027. The agreement includes an aggregate termination penalty up to $350 million, of which $250 million declines on a straight-line basis over a period of five years beginning in July 2020 and $100 million declines on a straight-line basis over a period of eight years beginning in October 2019.

In March 2018, we entered into a 10-year supply agreement for the purchase of cover glass for our PV solar modules. Under the terms of the agreement, we expect to pay approximately $500 million over the 10-year supply period, which is scheduled to begin by January 2020. The agreement includes a termination penalty of up to $80 million, which declines annually on a straight-line basis over a period of six years.

Product Warranties

When we recognize revenue for module or system 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 solar modules under warranty installed at customer locations, our historical experience with warranty claims, our monitoring of field installation sites, our internal testing and the expected future performance of our solar modules and balance of systems (“BoS”) parts, and our estimated replacement costs. From time to time,

Table of Contents

we have taken remediation actions with respect to affected modules beyond our limited warranties and 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 may be material to our condensed consolidated statements of operations if we commit to any such remediation actions.

Product warranty activities during the three and nine months ended September 30, 2018 and 2017 were as follows (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Product warranty liability, beginning of period	$225,813	$239,701	$224,274	$252,408
Accruals for new warranties issued	2,954	8,048	8,422	18,334
Settlements	(2,423)	(2,867)	(7,504)	(6,783)
Changes in estimate of product warranty liability	(940)	(1,188)	212	(20,265)
Product warranty liability, end of period	$225,404	$243,694	$225,404	$243,694
Current portion of warranty liability	$33,595	$31,016	$33,595	$31,016
Noncurrent portion of warranty liability	$191,809	$212,678	$191,809	$212,678

We estimate our limited product warranty liability for power output and defects in materials and workmanship under normal use and service conditions based on warranty return rates of approximately 1% to 3% for modules covered under warranty, depending on the series of module technology. As of September 30, 2018, a 1% change in estimated warranty return rates would change our module warranty liability by $75.9 million, and a 1% change in the estimated warranty return rate for BoS parts 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 engineering, procurement, and construction (“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 period 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 specified in the EPC contract. In certain instances, a bonus payment may be received at the end of the applicable test period if the system performs above a specified level. As of September 30, 2018 and December 31, 2017, we accrued $0.3 million and $2.1 million, respectively, of estimated obligations under such arrangements, which were classified as “Other current liabilities” in our 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 September 30, 2018 and December 31, 2017, 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, Guarantees, 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 typically base these estimates 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. We subsequently measure such liabilities at the greater of the initially estimated premium or the contingent liability required to be recognized under ASC 450, Contingencies. We recognize any indemnification liabilities as a reduction of revenue in the related transaction.

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. As of September 30, 2018 and December 31, 2017, we accrued \$3.0 million and \$4.9 million of noncurrent indemnification liabilities, respectively, for tax related indemnifications. As of December 31, 2017, we also accrued \$2.9 million of current indemnification liabilities for such matters. As of September 30, 2018, the maximum potential amount of future payments under our tax related indemnifications was \$122.3 million, and we held insurance policies allowing us to recover up to \$84.9 million of potential amounts paid under the indemnifications covered by the policies.

Contingent Consideration

As part of our prior acquisition of Enki Technology, Inc. ("Enki"), we agreed to pay additional consideration to the selling shareholders contingent upon the achievement of certain production and module performance milestones. As of September 30, 2018 and December 31, 2017, we accrued \$3.5 million and \$1.8 million of current liabilities, respectively, for our contingent obligations associated with the Enki acquisition based on their estimated fair values and the expected timing of payment.

We continually seek to make additions to our advanced-stage project pipeline by actively developing our early-to-mid-stage project pipeline and by pursuing opportunities to acquire projects at various stages of development. In connection with such project acquisitions, we may agree to pay additional amounts to project sellers upon the achievement of certain milestones, such as obtaining a PPA, obtaining financing, or selling the project to a new owner. We recognize a project acquisition contingent liability when we determine that such a liability is both probable and reasonably estimable, and the carrying amount of the related project asset is correspondingly increased. As of September 30, 2018 and December 31, 2017, we accrued \$2.9 million and \$4.4 million of current liabilities, respectively, and \$2.2 million and \$3.2 million of long-term liabilities, respectively, for project related contingent obligations. Any future differences between the acquisition-date contingent obligation estimate and the ultimate settlement of the obligation are recognized as an adjustment to the project asset, as contingent payments are considered direct and incremental to the underlying value of the related project.

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 any 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 and nine months ended

September 30, 2018 and 2017, substantially all of our modules sold were not covered by our collection and recycling program.

Table of Contents

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; material, labor, and capital costs; the 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) the expected economic factors 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. During the three months ended September 30, 2018, we completed our annual cost study of obligations under our module collection and recycling program and reduced the associated liability by $34.2 million primarily due to higher by-product credits for glass, lower capital costs resulting from the expanded scale of our recycling facilities, and adjustments to certain valuation assumptions driven by our increased experience with module recycling. During the three months ended September 30, 2017, we completed our annual cost study for the program and reduced our module collection and recycling liability by $15.8 million primarily as a result of updates to several valuation assumptions, including a decrease in certain inflation rates.

Our module collection and recycling liability was $134.0 million and $166.6 million as of September 30, 2018 and December 31, 2017, respectively. As of September 30, 2018, a 1% increase in the annualized inflation rate used in our estimated future collection and recycling cost per module would increase our liability by $25.6 million, and a 1% decrease in that rate would decrease our liability by $21.6 million. See Note 5. "Restricted Cash and Investments" to our condensed consolidated financial statements for more information about our arrangements for funding this liability.

Legal Proceedings

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, the "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. On January 31, 2018, the Ninth Circuit issued an opinion affirming the Arizona District Court's order denying in part defendants' motion for summary judgment. On March 16, 2018, First Solar filed a petition for panel rehearing or rehearing en banc with the Ninth Circuit. On May 7, 2018, the Ninth Circuit denied defendants' petition. On August 6, 2018, defendants filed a petition for writ of certiorari to the U.S. Supreme Court. The Court has not yet ruled on that petition. Meanwhile, the case is currently pending in the Arizona District Court and expert discovery is ongoing. A trial is scheduled to begin on April 9, 2019.

This lawsuit asserts claims that, if resolved against us, could give rise to substantial damages, and an unfavorable outcome or settlement may result in a significant monetary judgment or award against us or a significant monetary payment by us, and could have a material adverse effect on our business, financial condition, and results of operations. Even if this lawsuit is not resolved against us, the costs of defending the lawsuit may be significant, as may be the cost of any settlement, and would likely exceed the coverage limits of, or may not be covered by, our insurance policies. Given the need for further expert discovery, and the uncertainties of trial, at this time we are not in a position to assess the likelihood of any potential loss or adverse effect on our financial condition 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.

First Solar and the individual defendants filed a motion to dismiss the complaint on July 16, 2018. The Court has not yet ruled on that motion. Accordingly, at this time we are not in a position to assess the likelihood of any potential loss or adverse effect on our financial condition 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 Class Action is assigned. On August 8, 2012, the court consolidated the four derivative actions pending in the 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 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 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 (the “Intervention Appeal”). 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 (the “Merits Appeal”). On January 22, 2018, the Ninth Circuit ruled in favor of First Solar in the Intervention Appeal, and dismissed that appeal. On June 13, 2018, the Ninth Circuit ruled in favor of First Solar in the Merits Appeal, and dismissed that appeal.

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 (“Bargar”). 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 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 June 29, 2018, the court entered an order continuing the stay until November 30, 2018.

The Company believes that the plaintiff in the Bargar derivative action lacks standing to pursue litigation on behalf of First Solar. The Bargar derivative action is still in the initial stages and there has been no discovery. Accordingly, at this time we are not in a position to assess the likelihood of any potential loss or adverse effect on our financial condition or to estimate the range of potential loss, if any.

Table of Contents

Other Matters and Claims

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

12. Revenue from Contracts with Customers

The following table represents a disaggregation of revenue from contracts with customers for the three and nine months ended September 30, 2018 and 2017 along with the reportable segment for each category (in thousands):

		Three Months Ended September 30,		Nine Months Ended September 30,	
Category	Segment	2018	2017	2018	2017
Solar modules	Modules	$119,825	$300,297	$386,450	$599,827
Solar power systems	Systems	386,237	747,579	850,306	1,840,097
EPC services	Systems	134,369	272	203,941	40,706
O&M services	Systems	25,431	25,414	76,572	75,074
Energy generation (1)	Systems	10,358	13,461	35,534	43,125
Module plus	Systems	—	3	—	3,314
Net sales		$676,220	$1,087,026	$1,552,803	$2,602,143

(1) During the three and nine months ended September 30, 2017, the majority of energy generated and sold by our PV solar power systems was accounted for under ASC 840 consistent with the classification of the associated PPAs.

We recognize revenue for module sales at a point in time following the transfer of control of the modules to the customer, which typically occurs upon shipment or delivery depending on the terms of the underlying contracts. Such contracts may contain provisions that require us to make liquidated damage payments to the customer if we fail to deliver modules by scheduled dates. We recognize these liquidated damages as a reduction of revenue in the period we transfer control of the modules to the customer.

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 the 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 following table 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 and nine months ended September 30, 2018 and 2017 as well as the number of projects that comprise such changes. For purposes of the 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 with the exception of the sales and use tax matter described below, for which the aggregate change in estimate has been presented. Also included in the table is the net change in estimate as a percentage of the aggregate revenue for such projects.

Table of Contents

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Number of projects (1)	2	2	23	4
Increase (decrease) in revenue from net changes in transaction prices (in thousands) (1)	$6,672	$1,153	$54,653	$(14)
(Decrease) increase in revenue from net changes in input cost estimates (in thousands)	(2,948)	2,874	(13,070)	4,994
Net increase in revenue from net changes in estimates (in thousands)	$3,724	$4,027	$41,583	$4,980
Net change in estimate as a percentage of aggregate revenue for associated projects	0.3 %	1.1 %	0.4 %	0.8 %

(1) During the nine months ended September 30, 2018, we settled a tax examination with the state of California regarding several matters, including certain sales and use tax payments due under lump sum EPC contracts. Accordingly, we revised our estimates of sales and use taxes due for projects in the state of California, which affected the estimated transaction prices for such contracts, and recorded an increase to revenue of $54.6 million.

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 nine months ended September 30, 2018 (in thousands):

	September 30, 2018	December 31, 2017	Nine Month Change	
Accounts receivable, unbilled	$ 410,513	$ 172,594		
Retainage	10,621	2,014		
Accounts receivable, unbilled and retainage	$ 421,134	$ 174,608	$246,526	141%
Deferred revenue (1)	$ 263,577	$ 145,073	$118,504	82 %

(1) Includes $47.7 million and $63.3 million of long-term deferred revenue classified as “Other liabilities” on our condensed consolidated balance sheets as of September 30, 2018 and December 31, 2017, respectively.

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 nine months ended September 30, 2018, our contract assets increased by $246.5 million primarily due to certain unbilled receivables associated with ongoing construction activities at the California Flats and Willow Springs projects and the completion of the sale of the Manildra project. During the nine months ended September 30, 2018, our contract liabilities increased by $118.5 million primarily as a result of advance payments received for sales of solar modules and certain EPC projects in Florida and Texas, partially offset by the completion of the sale of certain

Japan projects, for which we collected the proceeds in 2017. During the nine months ended September 30, 2018 and 2017, we recognized revenue of $71.9 million and $308.6 million, respectively, that was included in the corresponding contract liability balance at the beginning of the periods.

Table of Contents

The following table represents our remaining performance obligations as of September 30, 2018 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. Such table excludes remaining performance obligations for any sales arrangements that had not fully satisfied the criteria to be considered a contract with a customer pursuant to the requirements of ASC 606. We expect to recognize $1.1 billion 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	Percentage of Revenue Recognized
California Flats, California	280	Solar power systems	Capital Dynamics	2018	87%
Phoebe, Texas	250	EPC	Innergix Renewable Energy	2019	2%
GA Solar 4, Georgia (1)	200	Solar power systems	Origis Energy USA	2020	6%
Rosamond, California	150	Solar power systems	Clearway Energy Group	2019	48%
Willow Springs, California	100	Solar power systems	D.E. Shaw Renewable Investments	2018	56%
Grange Hall, Florida	61	EPC	Tampa Electric Company	2019	23%
Peace Creek, Florida	55	EPC	Tampa Electric Company	2019	10%
Troy Solar, Indiana	51	EPC	Southern Indiana Gas and Electric Company	2020	—%
Lake Hancock, Florida	50	EPC	Tampa Electric Company	2019	—%
Total	1,197				

(1) Previously known as the Twiggs County Solar project.

As of September 30, 2018, we had entered into contracts with customers for the future sale of 8.4 GW_{DC} of solar modules for an aggregate transaction price of $3.1 billion. We expect to recognize such amounts as revenue through 2021 as we transfer control of the modules to the customer. As of September 30, 2018, 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 $0.5 billion of revenue during the noncancelable term of these O&M contracts over a weighted-average period of 11.5 years.

13. Share-Based Compensation

The following table presents share-based compensation expense recognized in our condensed consolidated statements of operations for the three and nine months ended September 30, 2018 and 2017 (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Cost of sales	$1,612	$1,674	$5,148	$4,778
Selling, general and administrative	4,620	6,678	16,884	16,375
Research and development	1,319	1,641	4,383	4,230

Production start-up	—	112	372	144
Total share-based compensation expense	$7,551	$10,105	$26,787	$25,527

Table of Contents

The following table presents share-based compensation expense by type of award for the three and nine months ended September 30, 2018 and 2017 (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Restricted and performance stock units	$7,200	$9,581	$25,193	$23,791
Unrestricted stock	379	459	1,258	1,297
Stock purchase plan	—	—	—	394
	7,579	10,040	26,451	25,482
Net amount (absorbed into) released from inventory	(28)	65	336	45
Total share-based compensation expense	$7,551	$10,105	$26,787	$25,527

Share-based compensation expense capitalized in inventory was $1.8 million and $2.1 million as of September 30, 2018 and December 31, 2017, respectively. As of September 30, 2018, we had $47.1 million of unrecognized share-based compensation expense related to unvested restricted and performance stock units, which we expect to recognize over a weighted-average period of approximately 1.3 years.

In February 2017, the compensation committee of our board of directors approved a long-term incentive program for key executive officers and associates. The 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 program consists of (i) performance stock units to be earned over an approximately three-year performance period beginning in March 2017 and (ii) stub-year grants of separate performance stock units to be earned over an approximately two-year performance period also beginning in March 2017. Vesting of the March 2017 performance stock units is contingent upon the relative attainment of target cost per watt and operating expense metrics. In April 2018, in continuation of our long-term incentive program for key executive officers and associates, the compensation committee of our board of directors approved additional grants of performance stock units to be earned over an approximately three-year performance period beginning in May 2018. Vesting of the May 2018 performance stock units is contingent upon the relative attainment of target gross margin, operating expense, and contracted revenue metrics. Vesting of performance stock units is also contingent upon the employment of program participants through the applicable vesting dates, with limited exceptions in case of death, disability, a qualifying retirement, or a change-in-control of First Solar. Performance stock units were included in the computation of diluted net income per share based on the number of shares that would be issuable if the end of the reporting period were the end of the contingency period.

14. Income Taxes

The Tax Act, enacted in December 2017, significantly revised U.S. tax law by, among other things, lowering the statutory federal corporate income tax rate from 35% to 21% for tax years beginning after December 31, 2017, eliminating certain deductions, imposing a one-time transition tax on certain accumulated earnings and profits of foreign corporate subsidiaries (the “transition tax”) that may electively be paid over eight years, introducing new tax regimes, and changing how foreign earnings are subject to U.S. tax. The Tax Act also includes many new provisions, such as changes to bonus depreciation, changes to deductions for executive compensation, net operating loss deduction limitations, a tax on global intangible low-taxed income (“GILTI”) earned by foreign corporate subsidiaries, a base erosion anti-abuse tax (“BEAT”), and a deduction for foreign-derived intangible income (“FDII”). We continue to evaluate the impact of the Tax Act on us.

In December 2017, the SEC issued Staff Accounting Bulletin No. 118 to (i) clarify certain aspects of accounting for income taxes under ASC 740 in the reporting period the Tax Act was signed into law when information is not yet available or complete and (ii) provide a measurement period up to one year to complete the accounting for the Tax Act. We have not completed our accounting for the Tax Act but have, in certain cases, made reasonable estimates of the effects of the Tax Act. In other cases, we have not been able to make a reasonable estimate of such tax effects and have continued to account for the affected items, including state income taxes to the extent there is uncertainty regarding conformity to the federal tax system, based on previous tax laws. In all cases, we will continue to make and refine our estimates as additional analysis is completed. Our estimates may also be refined as we gain a more thorough understanding of the tax law. Any changes to our provisional estimates could be material to income tax expense.

As a result of the Tax Act, we remeasured certain deferred tax assets and liabilities based on the tax rate applicable to when the temporary differences are expected to reverse in the future, which is generally 21%, and recorded a provisional tax expense of $6.6 million for the year ended December 31, 2017. No adjustments to this provisional amount were made during the three and nine months ended September 30, 2018. We continue to evaluate certain aspects of the Tax Act, which could potentially affect the remeasurement of these deferred tax balances and result in additional tax expense.