

Atlantic Power Corporation

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Report of Independent Registered Public Accounting Firm

To the Shareholders and Board of Directors
Atlantic Power Corporation:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Atlantic Power Corporation and subsidiaries (the Company) as of December 31, 2019 and 2018, the related consolidated statements of operations, comprehensive (loss) income, shareholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2019, and the related notes, (and financial statement schedules I to II) (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2019, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States)(PCAOB), the Company's internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated February 27, 2020 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ KPMG LLP

We have served as the Company's auditor since 2010.

New York, New York

February 27, 2020

Report of Independent Registered Public Accounting Firm

To the Shareholders and Board of Directors
Atlantic Power Corporation:

Opinion on Internal Control Over Financial Reporting

We have audited Atlantic Power Corporation and subsidiaries' (the Company) internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2019 and 2018, the related consolidated statements of operations, comprehensive (loss) income, shareholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2019, and the related notes, (and financial statement schedules I to II) (collectively, the consolidated financial statements) and our report dated February 27, 2020 expressed an unqualified opinion on those consolidated financial statements.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Annual Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ KPMG LLP

New York, New York

February 27, 2020

ATLANTIC POWER CORPORATION
CONSOLIDATED BALANCE SHEETS
(in millions of U.S. dollars)

	December 31,	
	2019	2018
Assets		
Current assets:		
Cash and cash equivalents	\$ 74.9	\$ 68.3
Restricted cash	7.7	2.1
Accounts receivable	30.4	35.7
Insurance recovery receivable (Note 23)	13.5	—
Current portion of derivative instruments asset (Notes 14 and 15)	0.7	4.2
Inventory (Note 7)	18.6	15.8
Prepayments	3.8	4.0
Income taxes receivable (Note 16)	1.8	0.3
Lease receivable (Note 24)	0.9	—
Other current assets	0.4	5.9
Total current assets	152.7	136.3
Property, plant, and equipment, net (Note 8)	502.1	549.5
Equity investments in unconsolidated affiliates (Note 6)	96.6	140.8
Power purchase agreements and intangible assets, net (Note 10)	144.3	170.1
Goodwill (Note 9)	21.3	21.3
Derivative instruments asset (Notes 14 and 15)	—	0.3
Operating lease right-of-use assets (Note 24)	6.3	—
Deferred income taxes (Note 16)	10.4	7.0
Other assets	1.9	6.2
Total assets	\$ 935.6	\$ 1,031.5
Liabilities		
Current liabilities:		
Accounts payable	\$ 8.9	\$ 2.5
Accrued interest	2.6	2.3
Other accrued liabilities	20.8	20.2
Current portion of long-term debt (Note 12)	76.4	68.1
Current portion of derivative instruments liability (Notes 14 and 15)	12.0	4.5
Convertible debentures (Note 13)	—	18.1
Operating lease liabilities (Note 24)	2.0	—
Other current liabilities	0.2	0.2
Total current liabilities	122.9	115.9
Long-term debt, net of unamortized discount and deferred financing costs (Note 12)	473.5	540.7
Convertible debentures, net of discount and unamortized deferred financing costs (Note 13)	81.1	75.7
Derivative instruments liability (Notes 14 and 15)	15.9	15.4
Deferred income taxes (Note 16)	23.7	16.0
Power purchase agreements and intangible liabilities, net (Note 10)	19.8	21.2
Asset retirement obligations, net (Note 11)	51.5	49.2
Operating lease liabilities (Note 24)	4.8	—
Other long-term liabilities (Note 11)	4.7	5.0
Total liabilities	797.9	839.1
Equity		
Common shares, no par value, unlimited authorized shares; 108,675,294 and 108,341,738 issued and outstanding at December 31, 2019 and December 31, 2018 (Note 19)	1,259.9	1,260.9
Accumulated other comprehensive loss (Note 5)	(140.7)	(146.2)
Retained deficit	(1,164.2)	(1,121.6)
Total Atlantic Power Corporation shareholders' equity	(45.0)	(6.9)
Preferred shares issued by a subsidiary company (Note 20)	182.7	199.3
Total equity	137.7	192.4
Total liabilities and equity	\$ 935.6	\$ 1,031.5

See accompanying notes to consolidated financial statements.

ATLANTIC POWER CORPORATION

CONSOLIDATED STATEMENTS OF OPERATIONS

(in millions of U.S. dollars, except per share amounts)

	Year Ended December 31,		
	2019	2018	2017
Project revenue:			
Energy sales (Note 4)	\$ 138.0	\$ 130.9	\$ 148.9
Energy capacity revenue (Note 4)	125.4	97.9	105.8
Other (Note 4)	18.2	53.5	176.3
	281.6	282.3	431.0
Project expenses:			
Fuel	72.3	73.1	106.3
Operations and maintenance	77.0	85.0	87.8
Depreciation and amortization	64.5	83.7	113.1
	213.8	241.8	307.2
Project other income (loss):			
Change in fair value of derivative instruments (Notes 14 and 15)	(8.9)	2.2	2.1
Equity in (loss) earnings of unconsolidated affiliates (Note 6)	(3.0)	43.2	(54.8)
Interest, net	(1.1)	(1.8)	(17.5)
Impairment (Note 9)	(5.8)	—	(101.1)
Insurance loss (Note 23)	(1.0)	—	—
Other (expense) income, net	(1.2)	4.1	0.1
	(21.0)	47.7	(171.2)
Project income (loss)	46.8	88.2	(47.4)
Administrative and other expenses:			
Administration	23.9	23.9	23.6
Interest expense, net	44.0	52.7	64.2
Foreign exchange loss (gain)	11.9	(22.8)	16.3
Other expense (income), net (Note 14)	1.0	(3.0)	(0.4)
	80.8	50.8	103.7
(Loss) income from operations before income taxes	(34.0)	37.4	(151.1)
Income tax expense (Note 16)	9.8	0.2	(58.1)
Net (loss) income	(43.8)	37.2	(93.0)
Net (loss) income attributable to preferred shares of a subsidiary company (Note 20)	(1.2)	0.4	5.6
Net (loss) income attributable to Atlantic Power Corporation	\$ (42.6)	\$ 36.8	\$ (98.6)
Net (loss) earnings per share attributable to Atlantic Power Corporation shareholders: (Note 21)			
Basic	\$ (0.39)	\$ 0.33	\$ (0.86)
Diluted	(0.39)	0.29	(0.86)
Weighted average number of common shares outstanding: (Note 21)			
Basic	109.3	112.0	115.1
Diluted	109.3	141.8	115.1

See accompanying notes to consolidated financial statements.

ATLANTIC POWER CORPORATION

CONSOLIDATED STATEMENTS OF COMPREHENSIVE (LOSS) INCOME

(in millions of U.S. dollars)

	Year Ended December 31,		
	2019	2018	2017
Net (loss) income	\$ (43.8)	\$ 37.2	\$ (93.0)
Other comprehensive income, net of tax:			
Unrealized (loss) gain on hedging activities	\$ (0.3)	\$ 0.4	\$ (0.1)
Net amount reclassified to earnings	0.3	0.1	0.5
Net realized and unrealized gain on derivatives	—	0.5	0.4
Defined benefit plan, net of tax	(0.3)	0.2	(0.7)
Foreign currency translation adjustments	5.8	(12.1)	14.0
Other comprehensive income (loss), net of tax	5.5	(11.4)	13.7
Comprehensive (loss) income	(38.3)	25.8	(79.3)
Less: Comprehensive (loss) income attributable to preferred shares of a subsidiary company	(1.2)	0.4	5.6
Comprehensive (loss) income attributable to Atlantic Power Corporation	<u>\$ (37.1)</u>	<u>\$ 25.4</u>	<u>\$ (84.9)</u>

See accompanying notes to consolidated financial statements.

ATLANTIC POWER CORPORATION

CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY

(in millions of U.S. dollars)

	Common Shares (Shares)	Common Shares (Amount)	Retained Deficit	Accumulated Other Comprehensive (Loss) Income	Preferred Shares of a Subsidiary Company	Total Shareholders' Equity
Balance at January 1, 2017	114.6	\$ 1,272.9	\$ (1,059.8)	\$ (148.5)	\$ 221.3	\$ 285.9
Net (loss) income	—	—	(98.6)	—	5.6	(93.0)
Share-based compensation	0.7	2.1	—	—	—	2.1
Common share repurchases	(0.1)	(0.2)	—	—	—	(0.2)
Preferred share repurchases	—	—	—	—	(3.1)	(3.1)
Dividends on preferred shares of a subsidiary company - Series 1 (Cdn\$1.212500 per share)	—	—	—	—	(4.6)	(4.6)
Dividends on preferred shares of a subsidiary company - Series 2 (Cdn\$1.392500 per share)	—	—	—	—	(2.5)	(2.5)
Dividends on preferred shares of a subsidiary company - Series 3 (Cdn\$1.182500 per share)	—	—	—	—	(1.5)	(1.5)
Realized and unrealized gain on hedging activities, net of tax of \$0.3 million	—	—	—	0.4	—	0.4
Foreign currency translation adjustments	—	—	—	14.0	—	14.0
Defined benefit plan, net of tax of \$0.3 million	—	—	—	(0.7)	—	(0.7)
Balance at December 31, 2017	115.2	\$ 1,274.8	\$ (1,158.4)	\$ (134.8)	\$ 215.2	\$ 196.8
Net income	—	—	36.8	—	0.4	37.2
Share-based compensation	0.9	2.7	—	—	—	2.7
Common share repurchases	(7.8)	(16.6)	—	—	—	(16.6)
Preferred share repurchases	—	—	—	—	(8.0)	(8.0)
Dividends on preferred shares of a subsidiary company - Series 1 (Cdn\$1.212500 per share)	—	—	—	—	(4.2)	(4.2)
Dividends on preferred shares of a subsidiary company - Series 2 (Cdn\$1.392500 per share)	—	—	—	—	(2.5)	(2.5)
Dividends on preferred shares of a subsidiary company - Series 3 (Cdn\$1.327539 per share)	—	—	—	—	(1.6)	(1.6)
Realized and unrealized gain on hedging activities, net of tax of \$0.1 million	—	—	—	0.5	—	0.5
Foreign currency translation adjustments	—	—	—	(12.1)	—	(12.1)
Defined benefit plan, net of tax of \$0.1 million	—	—	—	0.2	—	0.2
Balance as of December 31, 2018	108.3	\$ 1,260.9	\$ (1,121.6)	\$ (146.2)	\$ 199.3	\$ 192.4
Net loss	—	—	(42.6)	—	(1.2)	(43.8)
Share-based compensation	1.4	1.5	—	—	—	1.5
Common share repurchases	(1.1)	(2.5)	—	—	—	(2.5)
Preferred share repurchases	—	—	—	—	(8.0)	(8.0)
Dividends on preferred shares of a subsidiary company - Series 1 (Cdn\$1.212500 per share)	—	—	—	—	(3.5)	(3.5)
Dividends on preferred shares of a subsidiary company - Series 2 (Cdn\$1.392500 per share)	—	—	—	—	(2.4)	(2.4)
Dividends on preferred shares of a subsidiary company - Series 3 (Cdn\$1.459115 per share)	—	—	—	—	(1.5)	(1.5)
Foreign currency translation adjustments	—	—	—	5.8	—	5.8
Defined benefit plan, net of tax of \$0.1 million	—	—	—	(0.3)	—	(0.3)
Balance as of December 31, 2019	108.6	\$ 1,259.9	\$ (1,164.2)	\$ (140.7)	\$ 182.7	\$ 137.7

See accompanying notes to consolidated financial statements.

ATLANTIC POWER CORPORATION
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in millions of U.S. dollars)

	Years Ended December 31,		
	2019	2018	2017
Cash provided by operating activities:			
Net (loss) income	\$ (43.8)	\$ 37.2	\$ (93.0)
Adjustments to reconcile net (loss) income to net cash provided by operating activities:			
Depreciation and amortization	64.4	83.7	113.1
(Gain) loss on disposal of fixed assets and inventory	(0.9)	(0.4)	0.1
Asset retirement obligations	1.4	3.5	—
Gain on step acquisition of equity investment	—	(7.2)	—
Share-based compensation	1.5	2.7	2.1
Impairment	5.8	—	101.1
Insurance loss	1.0	—	—
Equity in loss (earnings) from unconsolidated affiliates	3.0	(43.2)	54.8
Distributions from unconsolidated affiliates	59.5	61.6	47.3
Unrealized foreign exchange loss (gain)	12.2	(22.0)	15.2
Change in fair value of derivative instruments	10.7	(5.5)	(2.1)
Amortization of debt discount, deferred financing costs and operating lease right-of-use assets	8.6	9.4	10.8
Deferred income taxes	4.8	(3.6)	(62.2)
Change in other operating balances			
Accounts receivable	8.2	18.8	(15.4)
Inventory	(1.8)	1.6	(1.6)
Prepayments and other assets	3.9	8.7	0.4
Accounts payable	5.1	(1.2)	(0.9)
Accruals and other liabilities	1.1	(6.6)	(0.5)
Cash provided by operating activities	144.7	137.5	169.2
Cash used in investing activities:			
Investment in unconsolidated affiliate	(18.7)	—	—
Insurance proceeds	11.3	—	—
Cash paid for acquisition, net of cash received	(8.6)	(12.8)	—
Deposit for acquisition	—	(2.6)	—
Proceeds from sales of assets and equity investments, net	1.6	0.2	1.0
Purchase of property, plant and equipment	(7.3)	(1.8)	(5.3)
Cash used in investing activities:	(21.7)	(17.0)	(4.3)
Cash used in financing activities:			
Proceeds from convertible debenture issuance	—	92.2	—
Repayment of convertible debentures	(18.5)	(88.1)	—
Common share repurchases	(2.5)	(16.6)	(0.2)
Preferred share repurchases	(8.0)	(8.0)	(3.1)
Repayment of corporate and project-level debt	(72.3)	(100.3)	(165.9)
Cash payments for vested LTIP units, including amounts withheld for taxes	(2.1)	(0.8)	(0.7)
Deferred financing costs	—	(5.1)	(0.3)
Dividends paid to preferred shareholders	(7.4)	(8.3)	(8.7)
Cash used in financing activities:	(110.8)	(135.0)	(178.9)
Net increase (decrease) in cash, restricted cash and cash equivalents	12.2	(14.5)	(14.0)
Cash, restricted cash and cash equivalents at beginning of period	70.4	84.9	98.9
Cash, restricted cash and cash equivalents at end of period	\$ 82.6	\$ 70.4	\$ 84.9
Supplemental cash flow information			
Interest paid	\$ 37.6	\$ 41.3	\$ 72.0
Income taxes paid, net	\$ 2.3	\$ 3.1	\$ 4.4
Accruals for construction in progress	\$ 0.3	\$ (1.5)	\$ 1.2

See accompanying notes to consolidated financial statements.

ATLANTIC POWER CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(in millions of U.S. dollars, except per-share amounts)

1. Nature of business

General

Atlantic Power is an independent power producer that owns power generation assets in eleven states in the United States and two provinces in Canada. Our power generation projects, which are diversified by geography, fuel type, dispatch profile and offtaker, sell electricity to utilities and other large customers predominantly under long-term power purchase agreements (“PPAs”), which seek to minimize exposure to changes in commodity prices. As of December 31, 2019, our portfolio consisted of twenty-one projects operating with an aggregate electric generating capacity of approximately 1,723 megawatts (“MW”) on a gross ownership basis and approximately 1,327 MW on a net ownership basis. Sixteen of the projects are majority-owned by the Company.

Atlantic Power is a corporation established under the laws of the Province of Ontario, Canada on June 18, 2004 and continued to the Province of British Columbia on July 8, 2005. Our shares trade on the Toronto Stock Exchange under the symbol “ATP” and on the New York Stock Exchange under the symbol “AT.” Our registered office is located at 1066 West Hastings Street, Suite 2600, Vancouver, British Columbia V6E 3X1 Canada and our headquarters is located at 3 Allied Drive, Suite 155, Dedham, Massachusetts 02026, USA.

2. Summary of significant accounting policies

(a) Principles of consolidation and basis of presentation:

The accompanying consolidated financial statements are prepared in accordance with accounting principles generally accepted in the United States of America (“GAAP”) and include the consolidated accounts and operations of our subsidiaries in which we have a controlling financial interest. The usual condition for a controlling financial interest is ownership of the majority of the voting interest of an entity. However, a controlling financial interest may also exist in entities, such as a variable interest entity (“VIE”), through arrangements that do not involve controlling voting interests.

We apply the standard that requires consolidation of VIEs, for which we are the primary beneficiary. The guidance requires a variable interest holder to consolidate a VIE if that party has both the power to direct the activities that most significantly impact the entities’ economic performance, as well as either the obligation to absorb losses or the right to receive benefits that could potentially be significant to the VIE. We have determined that our equity investments are not VIEs by evaluating their design and capital structure. Accordingly, we use the equity method of accounting for all of our investments in which we do not have an economic controlling interest. We eliminate all intercompany accounts and transactions in consolidation.

(b) Cash and cash equivalents:

Cash and cash equivalents include cash deposited at banks and highly liquid investments with original maturities of 90 days or less when purchased.

(c) Restricted cash:

Restricted cash represents cash, cash equivalents and cash advances that are maintained by the projects or corporate to support payments for maintenance costs, reconstruction costs and meet project level and corporate contractual debt obligations. Restricted cash is classified as a current or long-term asset based on the timing and nature of when or how the cash is expected to be used or when the restrictions are expected to lapse.

ATLANTIC POWER CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)
(in millions of U.S. dollars, except per-share amounts)

(d) Accounts receivable:

Accounts Receivable are carried at cost. We periodically assesses the collectability of accounts receivable, considering factors such as specific evaluation of collectability, historical collection experience, the age of accounts receivable and other currently available evidence of the collectability, and record an allowance for doubtful accounts for the estimated uncollectible amount as appropriate. We had no allowance for doubtful accounts recorded at December 31, 2019 and 2018, respectively.

(e) Deferred financing costs:

Deferred financing costs represent costs to obtain long-term financing and are amortized using the effective interest method over the term of the related debt, which ranges from 1 to 6 years. The carrying amount of deferred financing costs were recorded on the consolidated balance sheets as net of long-term debt and convertible debentures and was \$8.5 million and \$11.8 million at December 31, 2019 and 2018, respectively. Interest expense from the amortization of deferred financing costs for the years ended December 31, 2019, 2018, and 2017 was \$3.2 million, \$5.1 million, and \$6.3 million, respectively.

(f) Inventory:

Inventory represents spare parts, biofuel and natural gas, the majority of which is consumed by our projects in provision of their services, and are valued at the lower of cost and net realizable value. Cost is the sum of the purchase price and incidental expenditures and charges incurred to bring the inventory to its existing condition or location. The cost of inventory items that are interchangeable are determined on an average cost basis. For inventory items that are not interchangeable, cost is assigned using specific identification of their individual costs.

(g) Property, plant and equipment:

Property, plant and equipment are stated at cost, net of accumulated depreciation. Depreciation is provided on a straight-line basis over the estimated useful life of the related asset. Significant additions or improvements extending asset lives or increasing generating capacity are capitalized as incurred, while repairs and maintenance that do not improve or extend the life of the respective asset are charged to expense as incurred.

(h) Project development costs and capitalized interest:

Project development costs are expensed in the preliminary stages of a project and capitalized when the project is deemed to be commercially viable. Commercial viability is determined by one or a series of actions including among others, obtaining a PPA.

When a project is available for operations, capitalized interest and project development costs are reclassified to property, plant and equipment and depreciated on a straight-line basis over the estimated useful life of the project's related assets. Capitalized costs are charged to expense if a project is abandoned or management otherwise determines the costs to be unrecoverable.

ATLANTIC POWER CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)
(in millions of U.S. dollars, except per-share amounts)

(i) Power Purchase Agreements and intangible assets:

Intangible assets include PPAs and fuel supply agreements at our projects acquired as part of business combinations. Carrying amounts for PPAs and fuel supply agreements are based on the fair value assigned in the allocation of the purchase price of the acquired business. The balances are presented net of accumulated amortization in the consolidated balance sheets. Amortization is recorded on a straight-line basis over the remaining term of the agreement.

(j) Investments accounted for by the equity method:

We have investments in entities that own power-producing assets with the objective of generating cash flow. The equity method of accounting is applied to such investments in affiliates, which include joint ventures, partnerships, and limited liability companies because the ownership structure prevents us from exercising a controlling influence over the operating and financial policies of the projects. Our investments in partnerships and limited liability companies with 50% or less ownership, but greater than 5% ownership in which we do not have a controlling interest are accounted for under the equity method of accounting. We apply the equity method of accounting to investments in limited partnerships and limited liability companies with greater than 5% ownership because our influence over the investment's operating and financial policies is considered to be more than minor.

Under the equity method, equity in pre-tax income or losses of our investments is reflected as equity in earnings of unconsolidated affiliates in the consolidated statements of operations. We apply the nature of distributions method for the classification of our investments accounted for by the equity method in the Consolidated Statements of Cash Flows. The cash flows that are distributed to us from these unconsolidated affiliates are directly related to the operations of the affiliates' power-producing assets and are classified as cash flows from operating activities in the consolidated statements of cash flows. We record the return of our investments in equity investees as cash flows from investing activities. Cash flows from equity investees are considered a return of capital when distributions are generated from proceeds of either the sale of our investment in its entirety or a sale by the investee of all or a portion of its capital assets.

(k) Impairment of long-lived assets, intangible assets and equity method investments:

Long-lived assets, such as property, plant and equipment, and other intangible assets and liabilities subject to depreciation and amortization, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset group may not be recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to estimated undiscounted future cash flows expected to be generated by the asset group. If the carrying amount of an asset group exceeds its estimated future cash flows, an impairment charge is recognized in the amount by which the carrying amount of the asset group exceeds its fair value. Our asset groups have been determined to be at the plant level, which is the lowest level in which independent, separately identifiable cash flows have been identified. We also review a project for impairment at the earlier of executing a new PPA (or other arrangement) or six months prior to the expiration of an existing PPA. Factors such as the business climate, including current energy and market conditions, environmental regulation, the condition of assets, and the ability to secure new PPAs are considered when evaluating long-lived assets for impairment.

Investments in and the operating results of 50%-or-less owned entities not consolidated are included in the consolidated financial statements on the basis of the equity method of accounting. We review our investments in such unconsolidated entities for impairment whenever events or changes in business circumstances indicate that the carrying amount of the investments may not be fully recoverable. Evidence of a loss in value that is other than temporary might include the absence of an ability to recover the carrying amount of the investment, the inability of the investee to sustain an earnings capacity which would justify the carrying amount of the investment or, where applicable, estimated sales proceeds that are insufficient to recover the carrying amount of the investment. Our assessment as to whether any decline

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in value is other than temporary is based on our ability and intent to hold the investment and whether evidence indicating the carrying value of the investment is recoverable within a reasonable period of time outweighs evidence to the contrary. We generally consider our investments in our equity method investees to be strategic long-term investments. Therefore, we complete our assessments with a long-term view. If the fair value of the investment is determined to be less than the carrying value and the decline in value is considered to be other than temporary, the asset is written down to its estimated fair value.

(l) Goodwill:

Goodwill is the residual amount that results when the purchase price of an acquired business exceeds the sum of the amounts allocated to the assets acquired, less liabilities assumed, based on their fair values. Goodwill is allocated, as of the date of the business combination, to our reporting units that are expected to benefit from the synergies of the business combination.

Goodwill is not amortized and is tested for impairment annually as of November 30, or more frequently if events or changes in circumstances indicate that would more likely than not reduce the fair value of a reporting unit below its carrying value.

In our test, we first perform step zero to determine whether the existence of events or circumstances leads to a determination that it is more likely than not (i.e. more than 50%) that the fair value of a reporting unit is less than its carrying amount. Such qualitative factors may include the following: macroeconomic conditions, industry and market considerations, cost factors, overall financial performance and other relevant entity-specific events. If the qualitative assessment determines that an impairment is more likely than not, then we perform a quantitative impairment test. In the quantitative analysis, the carrying amount of the reporting unit is compared with its fair value. When the fair value of a reporting unit exceeds its carrying amount, goodwill of the reporting unit is considered not to be impaired. When the carrying amount of a reporting unit exceeds its fair value, an impairment loss is recognized in an amount equal to the excess, not to exceed the carrying amount of goodwill, and is recorded in the consolidated statements of operations.

We determine the fair value of our reporting units using an income approach with discounted cash flow models ("DCF"), as we believe forecasted cash flows are the best indicator of such fair value. A number of significant assumptions and estimates are involved in the application of the DCF model to forecast operating cash flows, including assumptions about discount rates, projected merchant power prices, generation, fuel costs and capital expenditure requirements. The undiscounted and discounted cash flows utilized in our long-lived asset recovery, equity method investment, and goodwill impairment tests for our reporting units are generally based on approved reporting unit operating plans for years with contracted PPAs and historical relationships for estimates at the expiration of PPAs. All cash flow forecasts from DCF models utilize estimated plant output for determining assumptions around future generation and industry data forward power and fuel curves to estimate future power and fuel prices. We used historical experience to determine estimated future capital investment requirements. The discount rate applied to the DCF models represents the weighted average cost of capital ("WACC") consistent with the risk inherent in future cash flows of the particular reporting unit and is based upon an assumed capital structure, cost of long-term debt and cost of equity consistent with comparable independent power producers. The fair value that could be realized in an actual transaction may differ from that used to evaluate the impairment of our reporting units.

The valuation of long-lived assets, equity method investments and goodwill for the impairment analyses is considered a level 3 fair value measurement, which means that the valuation of the assets and liabilities reflect management's own judgments regarding the assumptions market participants would use in determining the fair value of the assets and liabilities. Fair value determinations require considerable judgment and are sensitive to changes in these underlying assumptions and factors. As a result, there can be no assurance that the estimates and assumptions made for purposes of an impairment test will prove to be accurate predictions of the future. Examples of events or circumstances

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that could reasonably be expected to negatively affect the underlying key assumptions and ultimately impact the estimated fair value of our reporting units may include macroeconomic factors that significantly differ from our assumptions in timing or degree, increased input costs such as higher fuel prices and maintenance costs, or lower power prices than incorporated in our long-term forecasts.

(m) Accounts payable and other accrued liabilities:

Accounts payable consists of amounts due to trade creditors related to our core business operations. These payables include amounts owed to vendors and suppliers for items such as fuel, maintenance, inventory and other raw materials. Other accrued liabilities include items such as income taxes, legal contingencies and employee-related costs including payroll, benefits and related taxes.

(n) Derivative financial instruments:

We use derivative financial instruments in the form of interest rate swaps and foreign exchange forward contracts to manage our current and anticipated exposure to fluctuations in interest rates and foreign currency exchange rates. We also separate the conversion option of certain convertible debentures from the host instrument and account for it as an embedded derivative liability as the conversion option is in a currency different from our functional currency. We have also entered into natural gas supply contracts and natural gas forwards or swaps to minimize the effects of the price volatility of natural gas, which is a significant operating cost. We do not enter into derivative financial instruments for trading or speculative purposes. Certain derivative instruments qualify for a scope exception to fair value accounting because they are considered normal purchases or normal sales in the ordinary course of conducting business. This exception applies when we have the ability to, and it is probable that we will deliver or take delivery of the underlying physical commodity.

We have designated one of our interest rate swaps as a hedge of cash flows for accounting purposes. Tests are performed to evaluate hedge effectiveness and ineffectiveness at inception and on an ongoing basis, both retroactively and prospectively. Derivatives accounted for as hedges are recorded at fair value in the balance sheet. Unrealized gains or losses on derivatives designated as a hedge for accounting purposes are deferred and recorded as a component of accumulated other comprehensive (loss) income ("OCL") until the hedged transactions occur and are recognized in earnings. The ineffective portion of the cash flow hedge, if any, is immediately recognized in earnings.

Derivative financial instruments not designated as a hedge for accounting purposes are measured at fair value with changes in fair value recorded in the consolidated statements of operations. Derivative financial instruments under master netting arrangements are recorded net, when applicable, in the consolidated balance sheets. The following table summarizes derivative financial instruments that are not designated as hedges for accounting purposes and the accounting treatment in the consolidated statements of operations of the changes in fair value and cash settlements of such derivative financial instrument:

Derivative financial instrument	Classification of changes in fair value	Classification of cash settlements
Natural gas swaps	Changes in fair value of derivative instrument	Fuel expense
Fuel purchase agreements	Changes in fair value of derivative instrument	Fuel expense
Interest rate swaps	Changes in fair value of derivative instrument	Interest expense
Convertible debenture conversion option	Other expense (income), net	NA
Foreign currency forward contract	Foreign exchange loss (gain)	Foreign exchange loss (gain)

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)
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(o) Income taxes:

Income tax expense includes the current tax obligation or benefit and change in deferred income tax asset or liability for the period. We use the asset and liability method of accounting for deferred income taxes and record deferred income taxes for all significant temporary differences. Income tax benefits associated with uncertain tax positions are recognized when we determine that it is more-likely-than-not that the tax position will be ultimately sustained. Refer to Note 16 for more information.

(p) Revenue recognition:

We recognize energy sales revenue on a gross basis when electricity and steam are delivered and capacity revenue when capacity is provided under the terms of the related contracts. PPAs, steam purchase arrangements and energy services agreements are long-term contracts with performance obligations to provide electricity, steam and capacity on a predetermined basis.

For certain PPAs determined to be operating leases, we recognize lease income consistent with the recognition of energy sales and capacity revenue. When energy is delivered and capacity is provided, we recognize lease income as a component of energy sales and capacity revenue.

We sell the majority of the capacity and energy from our power generation projects under PPAs to a variety of utilities and other parties. Under the PPAs, which have expiration dates ranging from May 2020 to November 2043, we receive payments for electric energy sold to our customers (known as energy payments), in addition to payments for electric generation capacity (known as capacity payments). We also sell steam from a number of our projects to industrial purchasers under steam sales agreements. Sales of electricity are generally higher during the summer and winter months, when temperature extremes create demand for either summer cooling or winter heating. The following is a description of principal activities from which we generate our revenue.

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Products and services	Nature, timing of satisfaction of performance obligations, and significant payment terms
Energy	Energy revenue is recognized upon transmission to the customer. Physical transactions, or the sale of generated electricity to meet supply and demand, are recorded on a gross basis in our consolidated statements of operations. The price of energy could be contracted under PPAs at set prices or merchant sales based on market merchant price. Energy revenue is also recognized under certain contracts for avoided generation during curtailment periods. Energy revenue is billed and paid on a monthly basis.
Energy capacity	Capacity revenues are recognized when contractually earned, and consist of revenues billed to a third party at a negotiated contract price under the applicable PPAs for making installed generation capacity available in order to satisfy reliability requirements or merchant capacity sales based on the market price for such capacity. Energy capacity is billed and paid on a monthly basis.
Other revenue includes the following:	
Steam energy and capacity	Steam revenue is recognized upon delivery to the customer. Steam capacity payments under the applicable PPAs are recognized as the amount billable under the respective PPA. Steam capacity is billed and paid on a monthly basis.
Waste heat	We generate electricity from excess steam provided by a nearby pipeline and its pumping station in the Solid Fuel segment. Waste heat is earned when it is generated and paid as a portion of monthly energy and capacity billing.
Ancillary and transmission services	We provide ancillary and transmission services to our customers under the terms of our PPAs. These services are billed and paid on a monthly basis.
Asset management and operation, operation and maintenance	We provide asset management and operation supervision to the Frederickson project, a facility that we jointly own with Puget Sound Energy. We also provide operation and maintenance services to several electric energy customers under the PPAs. All services are billed and paid on a monthly basis.
Enhanced dispatch contracts	Under certain contractual arrangements with our customers, we bill and are paid for not generating electricity. This revenue is recognized monthly under the terms of those agreements.

Refer to Note 4 *Revenue from contracts* for disaggregation of revenue and further contract balance information.

We have entered into PPAs to sell power at predetermined rates. PPAs are assessed as to whether they contain leases which convey to the counterparty the right to the use of the project's property, plant and equipment in return for future payments. Such arrangements are classified as either capital or operating leases. PPAs that transfer substantially all of the benefits and risks of ownership of property to the PPA counterparty are classified as direct financing leases.

For PPAs accounted for as operating leases, we recognize lease income consistent with the recognition of energy revenue due to variable volume of the generation. When energy is delivered, we recognize lease income in energy revenue.

(q) Administrative expenses:

Administrative expenses include corporate and other expenses primarily for executive management, finance, legal, human resources and information systems, which are not directly allocable to our business segments.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)
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(r) Foreign currency translation and transaction gains and losses:

The local currency is the functional currency of our U.S. and Canadian projects. Our reporting currency is the U.S. dollar. Foreign currency denominated assets and liabilities are translated at end-of-period rates of exchange. Revenues, expenses, and cash flows are translated at the weighted-average rates of exchange for the period. The resulting currency translation adjustments are not included in the determination of our statements of operations for the period, but are accumulated and reported as a separate component of shareholders' equity until sale of the net investment in the project takes place. Foreign currency transaction gains or losses are reported within foreign exchange (gain) loss in our consolidated statements of operations.

(s) Equity compensation plans:

The officers and certain other employees are eligible to participate in the Long-Term Incentive Plan ("LTIP"). Notional units granted that are expected to be redeemed in cash upon vesting are accounted for as liability awards. Notional units granted that are expected to be redeemed in common shares upon vesting are accounted for as equity awards. Unvested notional units are entitled to receive dividends, if paid, equal to the dividends per common share during the vesting period in the form of additional notional units. Unvested units are subject to forfeiture if the participant is not an employee at the vesting date.

We initially recognize compensation expense on the estimated number of notional units for which the requisite service is expected to be rendered. We have estimated a weighted average forfeiture rate of 11% for all notional unit grants under the LTIP. This estimate will be revisited if subsequent information indicates the actual number of notional units forfeited is likely to differ from previous estimates. Compensation expense related to awards granted to participants in the LTIP is recorded over the vesting period based on the estimated fair value of the award on the grant date for notional units accounted for as equity awards and the fair value of the award at each balance sheet date for notional units accounted for as liability awards.

(t) Asset retirement obligations:

The fair value for an asset retirement obligation is recorded in the period in which it is incurred. Retirement obligations associated with long-lived assets are those for which a legal obligation exists under enacted laws, statutes, and written or oral contracts, including obligations arising under the doctrine of promissory estoppel, and for which the timing and/or method of settlement may be conditional on a future event. When the liability is initially recorded, we capitalize the cost by increasing the carrying amount of the related long-lived asset. Over time, the liability is accreted to its present value each period and the capitalized cost is depreciated over the useful life of the related asset. Upon settlement of the liability, we either settle the obligation for its recorded amount or incur a gain or loss.

(u) Pension:

We offer pension benefits to certain employees through a defined benefit pension plan. We recognize the funded status of our defined benefit plan in the consolidated balance sheets in other long-term liabilities and record an offset to other comprehensive (loss) income. In addition, we also recognize on an after-tax basis, as a component of other comprehensive (loss) income, gains and losses as well as all prior service costs that have not been included as part of our net periodic benefit cost. The determination of our obligation and expenses for pension benefits is dependent on the selection of certain assumptions. These assumptions determined by management include the discount rate, the expected rate of return on plan assets, the rate of future compensation increases and retirement age. The assumptions used may differ materially from actual results, which may result in a significant impact to the amount of our pension obligation or expense recorded.

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(v) Business combinations:

We account for our business combinations in accordance with the acquisition method of accounting, which requires an acquirer to recognize and measure in its financial statements the identifiable assets acquired, the liabilities assumed, and any noncontrolling interest in the acquiree at fair value at the acquisition date. It also recognizes and measures the goodwill acquired or a gain from a bargain purchase in the business combination and determines what information to disclose to enable users of an entity's financial statements to evaluate the nature and financial effects of the business combination. In addition, transaction costs are expensed as incurred.

(w) Concentration of credit risk:

The financial instruments that potentially expose us to credit risk consist primarily of cash and cash equivalents, restricted cash, derivative instruments and accounts receivable. Cash and restricted cash are held by major financial institutions that are also counterparties to our derivative instruments. We have long-term agreements to sell electricity, gas and steam to public utilities and corporations. We have exposure to trends within the energy industry, including declines in the creditworthiness of our customers. We do not normally require collateral or other security to support energy-related accounts receivable. We do not believe there is significant credit risk associated with accounts receivable due to the credit-worthiness and payment history of our customers. See Note 22, *Segment and geographic information*, for a further discussion of customer concentrations.

(x) Use of estimates:

The preparation of financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenses during the year. Actual results could differ from those estimates. During the periods presented, we have made a number of estimates and valuation assumptions, including the useful lives and recoverability of property, plant and equipment, valuation of goodwill, intangible assets and liabilities related to PPAs and fuel supply agreements, the recoverability of equity investments, the recoverability of deferred tax assets, tax provisions, the fair value of financial instruments and derivatives, pension obligations, asset retirement obligations, and the fair values of acquired assets and liabilities assumed. In addition, estimates are used to test long-lived assets and goodwill for impairment and to determine the fair value of impaired assets. These estimates and valuation assumptions are based on present conditions and our planned course of action, as well as assumptions about future business and economic conditions. As better information becomes available or actual amounts are determinable, the recorded estimates are revised. Should the underlying valuation assumptions and estimates change, the recorded amounts could change by a material amount.

(y) Recently adopted and issued accounting standards:

Accounting Standards Adopted in 2019

In February 2016, the FASB issued authoritative guidance intended to increase transparency and comparability among organizations by recognizing lease assets and liabilities on the balance sheet and disclosing key information about leasing arrangements. Under the new guidance, lessees are required to recognize a right-of-use asset and a lease liability, measured on a discounted basis, at the commencement date for all leases with terms greater than twelve months. Additionally, this guidance requires disclosures to help investors and other financial statement users to better understand the amount, timing, and uncertainty of cash flows arising from leases, including qualitative and quantitative requirements. Any leases that expired before the initial application date did not require any accounting adjustment. This guidance became effective for annual reporting periods beginning after December 15, 2018, including interim periods within those fiscal years, with early adoption permitted. We elected certain practical expedients permitted, including the

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expedient that permits us to retain our existing lease assessment and classification. The Company has elected not to apply the recognition requirements to short-term leases and not to separate non-lease components from associated lease components, for all classes of underlying assets. In July 2018, the FASB issued further authoritative guidance to provide an additional transition method to adopt the new lease requirements by allowing entities to initially apply the requirements by recognizing a cumulative-effect adjustment to the opening balance of retained earnings in the period of adoption. We elected this transition method.

As the result of our adoption of the guidance, we recorded \$6.4 million and \$7.2 million of right-of-use assets and lease liabilities, respectively, in the consolidated balance sheets on January 1, 2019. We have no transitional adjustments to our opening retained earnings or our consolidated statements of operations. See Note 16, Leases for further information.

In August 2017, the FASB issued authoritative guidance to align an entity's risk management activities and financial reporting for hedging relationships through changes to both the designation and measurement guidance for qualifying hedging relationships and the presentation of hedge results. The guidance expands and refines hedge accounting for both nonfinancial and financial risk components and aligns the recognition and presentation of the effects of the hedging instrument and the hedged item in the financial statements. The guidance became effective for fiscal years beginning after December 15, 2018, with early adoption permitted. Adoption of this guidance did not impact the consolidated financial statements.

In February 2018, the FASB issued authoritative guidance to allow a reclassification from accumulated other comprehensive income to retained earnings for stranded tax effects resulting from the Tax Cuts and Jobs Act of 2017. The guidance became effective for fiscal years beginning after December 15, 2018. Adoption of this guidance did not impact the consolidated financial statements.

Accounting Standards Not Yet Adopted

In June 2016, the FASB issued ASU 2016-13, "*Financial Instruments-Credit Losses*" (Topic 326), *Measurement of Credit Losses on Financial Instruments* ("ASU 2016-13"). This guidance amends the guidance on measuring credit losses on financial assets held at amortized cost. ASU 2016-13 requires the measurement of all expected credit losses for financial assets held at the reporting date based on historical experience, current conditions, and reasonable and supportable forecasts. This guidance is effective for fiscal years beginning after December 15, 2019, including interim periods within those fiscal years. The Company has adopted ASU 2016-13 effective January 1, 2020. The impact of adoption will require additional disclosures commencing with our March 31, 2020 quarterly report on Form 10-Q; however, there is no anticipated material impact on our consolidated financial statements.

In August 2018, the FASB issued authoritative guidance to modify the disclosure requirements on fair value measurement disclosures. The guidance requires removals of certain disclosures, such as the amount of and reasons for transfers between level 1 and level 2 of fair value hierarchy and the policy for timing of transfers between levels. The guidance further requires modifications and additions surrounding the disclosures of level 3 fair value measurements and related unrealized gains and losses. The guidance is effective for fiscal years beginning after December 15, 2019. We do not expect this to have a material impact on the consolidated financial statements upon adoption.

In August 2018, the FASB issued authoritative guidance to remove disclosures that no longer are considered cost-beneficial, clarify the specific requirements of disclosures, and add disclosure requirements identified as relevant. The scope of the guidance is broad and includes reporting comprehensive income, debt modifications and extinguishments and other sub topics. The guidance is effective for fiscal years beginning after December 15, 2019. We are currently evaluating the impact that adoption will have on our disclosures.

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In August 2018, the FASB issued ASU No. 2018-14, “*Compensation -Retirement Benefits -Defined Benefit Plans -General (Subtopic 715-20)*”, to improve the effectiveness of benefit plan disclosures in the notes to financial statements by facilitating clear communication of the information required by GAAP that is most important to users of each entity’s financial statements. The amendments in this ASU modify the disclosure requirements for employers that sponsor defined benefit pension or other postretirement plans. Additionally, the amendments in this ASU remove disclosures that no longer are considered cost beneficial, clarify the specific requirements of disclosures, and add disclosure requirements identified as relevant. The amendments in this ASU are effective for fiscal years ending after December 15, 2020, for public business entities and early adoption is permitted for all entities. We are currently evaluating the impact that adoption will have on our disclosures.

In December 2019, the FASB issued amendments to the guidance for income taxes through ASU 2019-12, “*Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes.*” The amendments in this update simplify the accounting for income taxes by removing certain exceptions such as: 1) the incremental approach for intraperiod tax allocation when there is a loss from continuing operations and income or a gain from other items, 2) the requirement to recognize a deferred tax liability for equity method investments when a foreign subsidiary becomes an equity method investment, 3) the ability not to recognize a deferred tax liability for a foreign subsidiary when a foreign equity method investment becomes a subsidiary, and 4) the general methodology for calculating income taxes in an interim period when a year-to-date loss exceeds the anticipated loss for the year. For public entities, the amendments are effective for reporting periods beginning after December 15, 2020. Early adoption is permitted. We are in the process of evaluating the potential impact of the new guidance on our consolidated financial statements.

3. Acquisitions and divestments

2019 Acquisitions

(a) **South Carolina Biomass Plants**

On July 31, 2019, we completed the acquisition of two biomass plants in South Carolina, Allendale and Dorchester, from EDF Renewables Inc. The Allendale plant is located in Allendale, South Carolina and has been in service since November 2013. The Dorchester plant is located in Harleyville, South Carolina and has been in service since October 2013. The two plants are identical in design and each of the plants has a capacity of 20 megawatts. All of the output of the two plants is sold to Santee Cooper, a state-owned utility, under PPAs that run to 2043. The biomass fuel for the plants consists primarily of mill and harvesting residues. We believe the acquisition represents a meaningful addition to the level and length of our existing contracted cash flows.

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The final consideration paid for the two plants was \$12.6 million. In September 2018, we made a \$2.6 million down payment for the acquisition of the plants and paid the remaining due at closing, less working capital adjustments and transaction costs, from discretionary cash and cash equivalents. The South Carolina biomass plants are reflected in our Solid Fuel segment. See Note 22, *Segment and geographic information*. The following is a summary of the estimated fair values of the assets acquired and liabilities assumed:

Fair values		
Cash ⁽¹⁾	\$	1.4
Accounts receivable		4.3
Inventory		2.9
Property, plant, and equipment		4.0
Intangible assets		2.6
Accounts payable		(2.0)
Accrued liabilities		(0.3)
Other liabilities		(0.3)
Total purchase consideration	\$	12.6

⁽¹⁾ The cash acquired was received in October 2019 and has been included in the *Cash paid for acquisition, net of cash received* within the Statement of Cash Flows.

The \$2.6 million of intangible assets recorded will be amortized straight-line through the remaining life of each plant's PPA, which expire on October 31, 2043 (Dorchester) and November 18, 2043 (Allendale).

Allendale and Dorchester contributed \$10.8 million of revenue and net income of \$1.0 million to the consolidated statements of operations for the period from July 31, 2019 to December 31, 2019.

(b) AltaGas

On August 13, 2019, we completed our acquisition of the equity ownership interests held by AltaGas Power Holdings (U.S.) Inc. ("AltaGas") in two contracted biomass plants, Craven and Grayling (as defined below), in North Carolina and Michigan. Craven County Wood Energy ("Craven") is a 48 megawatt (MW) biomass plant in North Carolina that has been in service since October 1990. We acquired a 50% interest in the plant from AltaGas. The remaining 50% interest is held by CMS Energy. Craven has a PPA with Duke Energy Carolinas that will expire on December 31, 2027. The plant burns wood waste and poultry litter. Grayling Generating Station ("Grayling") is a 37 MW biomass plant in Michigan that has been in service since June 1992. We acquired a 30% interest in the plant from AltaGas. The remaining interests are held by Fortistar (20%) and CMS Energy (50%). Grayling has a PPA with Consumers Energy, the utility subsidiary of CMS Energy, which will expire on December 31, 2027. The plant burns wood waste from local mills, forestry residues, mill waste and bark. Both plants are operated by an affiliate of CMS Energy. The purchase price totaled \$18.7 million in cash consideration inclusive of approximately \$0.2 million of acquisition-related transaction costs.

Craven and Grayling are limited partnerships. We do not have financial control of the partnerships because decision-making is shared and the partners must agree on all major decisions for each of the entities. Accordingly, we account for our ownership in Craven and Grayling under the equity method of accounting because our ownership is between five and fifty percent resulting in Atlantic Power Corporation maintaining more than minor influence over the partnerships' operating and financing policies.

Craven and Grayling contributed \$1.0 million in equity in earnings from unconsolidated affiliates to the consolidated statements of operations, and \$0.9 million in equity method distributions for the period from August 13,

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2019 to December 31, 2019.

2018 Acquisitions

(a) Koma Kulshan Associates

On June 18, 2018, we purchased a 0.5% general partner interest in Concrete Hydro Partners L.P. (“Concrete”) for \$1.1 million from Mt. Baker Corporation with cash on-hand. Prior to the purchase, we owned a 0.5% general partner interest and a 99.0% limited partner interest in Concrete; following the purchase, we own 100% of the entity. Concrete was the owner of a 50% limited partner interest in Koma Kulshan Associates, L.P. (“Koma”). As a result of the purchase, our ownership of Koma increased from 49.75% to 50.00%. With 50.00% percent ownership of Koma, we did not have financial control of the entity as the two owner parties had joint control and substantive participating rights through the structure of the partnership agreement. Accordingly, since we did not obtain control of the project, we continued to account for Koma under the equity method of accounting as of June 30, 2018. The \$1.1 million purchase was accounted for as an additional equity method investment in Koma.

On July 27, 2018, we acquired the remaining 50% partnership interest in Koma from Covanta Energy Americas, Inc. (“Covanta”) for a total purchase price of \$12.5 million including working capital. As a result of this purchase, we own 100% of Koma and consolidated the project on the date of the acquisition. We completed this acquisition because we view hydro projects as assets that will provide us both near and long-term value.

Our acquisition of Koma is accounted for under the acquisition method of accounting as of the transaction closing date. The \$12.5 million total purchase price was funded with cash on-hand. We assumed operation of the project from Covanta on the acquisition date of July 27, 2018. The final purchase price allocation for the business combination is estimated as follows:

Fair value of consideration transferred:	
Cash	\$ 12.5
Other items to be allocated to identifiable assets acquired and liabilities assumed:	
Book value of our investment in Koma at the acquisition date	5.4
Gain recognized from step acquisition	7.2
Total purchase price	<u>\$ 25.1</u>
Final purchase price allocation	
Cash	\$ 0.8
Working capital	0.1
Property, plant, and equipment	1.2
Intangible assets	24.8
Asset retirement obligation	(1.8)
Total identifiable net assets	<u>\$ 25.1</u>

The fair values of the assets acquired and liabilities assumed, as well as the fair value of our previous 50% equity interest in Koma, were estimated by applying an income approach using the discounted cash flow method. These measurements were based on significant inputs not observable in the market and thus represent a level 3 fair value measurement. The primary considerations and assumptions that affected the discounted cash flows included the operational characteristics and financial forecasts of the acquired facility, remaining useful life and a discount rate based on the weighted average cost of capital adjusted for the risk and characteristics of the project. We recognized a \$7.2 million gain recorded in other income in the consolidated statements of operations for the year ended December 31, 2018 as a result of remeasuring our previous 50% equity interest in Koma immediately before the business combination to fair value. The \$24.8 million of intangible assets recorded will be amortized straight-line through the remaining life of

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Koma's PPA, which expires on March 31, 2037. Additionally, we recorded \$0.5 million of deferred tax liabilities and deferred tax expense related to the step acquisition of Koma Kulshan.

Koma contributed \$1.1 million of revenue and net income of \$0.0 million (excluding the \$7.2 million gain recognized from the step acquisition) to the consolidated statements of operations for the period from July 27, 2018 to December 31, 2018. The impact to pro forma results of operations was not significant to the years ended December 31, 2019, 2018 and 2017.

2017 Divestment

(a) Selkirk Project

On November 2017, we sold our 17.7% interest in Selkirk Cogen Partners, LP ("Selkirk") to JMC Selkirk LLC, the project's majority owner, for \$1.0 million. Selkirk was accounted for under the equity method of accounting. In the second quarter of 2017, we recorded a \$10.6 million impairment at Selkirk and wrote our equity investment down to zero. As a result of the sale, we recorded a \$1.0 million gain on sale, which is included as a component of equity in earnings (loss) from unconsolidated affiliates in the consolidated statement of operations for the year ended December 31, 2017.

4. Revenue from contracts

Revenue, receivables and contract liabilities by segment consists of following:

	Year Ended December 31, 2019				
	Solid Fuel	Natural Gas	Hydroelectric	Corporate	Consolidated Total
Project revenue:					
Energy sales	\$ 41.1	\$ 31.0	\$ 65.9	\$ —	\$ 138.0
Energy capacity revenue	38.7	86.7	—	—	125.4
Steam energy and capacity revenue	—	11.7	—	—	11.7
Waste heat revenue	0.2	—	—	—	0.2
Ancillary and transmission services	—	4.7	2.9	—	7.6
Asset management and operation	—	—	—	1.0	1.0
Miscellaneous revenue	—	(2.3)	—	—	(2.3)
	80.0	131.8	68.8	1.0	281.6

	Year Ended December 31, 2018				
	Solid Fuel	Natural Gas	Hydroelectric	Corporate	Consolidated Total
Project revenue:					
Energy sales	\$ 37.4	\$ 38.3	\$ 55.2	\$ —	\$ 130.9
Energy capacity revenue	41.6	56.3	—	—	97.9
Steam energy and capacity revenue	0.1	15.6	—	—	15.7
Waste heat revenue	0.2	—	—	—	0.2
Enhanced dispatch contracts	—	23.9	—	—	23.9
Ancillary and transmission services	4.5	5.4	3.1	—	13.0
Asset management and operation	—	—	—	1.0	1.0
Miscellaneous revenue	—	(0.3)	—	—	(0.3)
	83.8	139.2	58.3	1.0	282.3

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Contract balances

The following table provides information about receivables, contract assets and contract liabilities from contracts with customers.

	December 31, 2019	December 31, 2018
Accounts receivables	\$ 30.4	\$ 35.7
Contract liabilities	0.3	0.1

Contract liabilities as of December 31, 2019 include a \$0.2 million fuel reserve fund at Dorchester and a \$0.1 million steam sale credit at the San Diego plants. Contract liabilities as of December 31, 2018 include a \$0.1 million steam sale credit at the San Diego plants.

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5. Changes in accumulated other comprehensive income by component

The changes in accumulated OCI by component are as follows:

	Year Ended December 31,		
	2019	2018	2017
Foreign currency translation			
Balance at beginning of period	\$ (146.4)	\$ (134.3)	\$ (148.3)
Other comprehensive income (loss):			
Foreign currency translation adjustments ⁽¹⁾	5.8	(12.1)	14.0
Balance at end of period	<u>\$ (140.6)</u>	<u>\$ (146.4)</u>	<u>\$ (134.3)</u>
Pension			
Balance at beginning and end of period	\$ (1.4)	\$ (1.6)	\$ (0.9)
Other comprehensive loss:			
Settlement	0.3	—	—
Curtailment gain	—	—	(1.6)
Tax (expense) benefit	<u>(0.1)</u>	<u>—</u>	<u>0.4</u>
Total Other comprehensive income (loss) before reclassifications, net of tax	0.2	—	(1.2)
Total amount reclassified from accumulated other comprehensive income, net of tax	(0.5)	0.2	0.5
Total other comprehensive (loss) income	<u>(0.3)</u>	<u>0.2</u>	<u>(0.7)</u>
Balance at end of period	<u><u>\$ (1.7)</u></u>	<u><u>\$ (1.4)</u></u>	<u><u>\$ (1.6)</u></u>
Cash flow hedges			
Balance at beginning of period	\$ 1.6	\$ 1.1	\$ 0.7
Other comprehensive income (loss):			
Net change from periodic revaluations	(0.5)	0.5	(0.2)
Tax benefit (expense)	<u>0.2</u>	<u>(0.1)</u>	<u>0.1</u>
Total Other comprehensive (loss) income before reclassifications, net of tax	(0.3)	0.4	(0.1)
Net amount reclassified to earnings:			
Interest rate swaps ⁽²⁾	0.4	0.2	0.9
Tax expense	<u>(0.1)</u>	<u>(0.1)</u>	<u>(0.4)</u>
Total amount reclassified from accumulated other comprehensive income, net of tax	0.3	0.1	0.5
Total other comprehensive income	<u>—</u>	<u>0.5</u>	<u>0.4</u>
Balance at end of period	<u><u>\$ 1.6</u></u>	<u><u>\$ 1.6</u></u>	<u><u>\$ 1.1</u></u>

⁽¹⁾ In all periods presented, there were no tax impacts related to rate changes and no amounts were reclassified to (loss) earnings.

⁽²⁾ This amount was included in interest expense, net on the accompanying consolidated statements of operations.

ATLANTIC POWER CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)
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6. Equity method investments in unconsolidated affiliates

The following tables summarize our equity method investments in unconsolidated affiliates:

Entity name	Percentage of Ownership as of December 31, 2019	Carrying value as of December 31,	
		2019	2018
Frederickson ⁽¹⁾	50.2 %	\$ 65.2	\$ 72.0
Orlando Cogen, LP	50.0 %	3.6	4.5
Chambers Cogen, LP	40.0 %	9.0	64.3
Craven County Wood Energy, LP ⁽²⁾	50.0 %	9.5	—
Grayling Generating Station, LP ⁽²⁾	30.0 %	9.3	—
Total		<u>\$ 96.6</u>	<u>\$ 140.8</u>

⁽¹⁾ We own 50.15% of Frederickson. However, we do not have financial control of the entity. The Frederickson entity is organized under a joint ownership agreement. Under the terms of that agreement, the two owner parties have joint control of the asset and substantive participating rights through the structure of its Owner's Committee. Each party has equal representation on this committee and unanimous consent is required over all significant decisions of the entity. These significant decisions include, but are not limited to (i) approval of the annual operating plan, annual operating budget, annual capital budget and five-year forecasts, (ii) approval of all expenditures in excess of the approved budget, (iii) adoption of procedures intended to govern the operation and conduct of the facility, and (iv) entering into, amending, supplementing or terminating any project agreement. Disputes between the owners for these significant decisions are subject to independent arbitration. Accordingly, since we do not control the project, Frederickson is accounted for under the equity method of accounting.

⁽²⁾ In May 2019, we acquired the equity ownership interests held by AltaGas in Craven and Grayling. See Note 3 *Acquisitions and divestments*.

Deficit in earnings of equity method investments, net of distributions, was as follows:

Entity name	Year Ended December 31,		
	2019	2018	2017
Frederickson	\$ 9.1	\$ 6.9	\$ (27.9)
Orlando Cogen, LP	33.0	30.1	25.6
Koma Kulshan Associates ⁽¹⁾	—	0.6	0.7
Chambers Cogen, LP	(46.0)	5.6	(42.6)
Selkirk Cogen Partners, LP ⁽²⁾	—	—	(10.6)
Craven County Wood Energy, LP ⁽³⁾	0.1	—	—
Grayling Generating Station, LP ⁽³⁾	0.8	—	—
Total (loss) earnings of unconsolidated affiliates	(3.0)	43.2	(54.8)
Distributions from equity method investments	(59.5)	(61.6)	(47.3)
Deficit in earnings of equity method investments, net of distributions	<u>\$ (62.5)</u>	<u>\$ (18.4)</u>	<u>\$ (102.1)</u>

⁽¹⁾ In July 2018, we purchased the remaining 50% partnership interest in Koma and consolidated the project in our financial statements. See Note 3 *Acquisitions and divestments*.

⁽²⁾ In November 2017, we sold our 17.7% interest in Selkirk.

⁽³⁾ In May 2019, we acquired the equity ownership interests held by AltaGas in Craven and Grayling. See Note 3 *Acquisitions and divestments*.

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Distributions from equity method investments exceeded (loss) earnings of equity method investments for the years ended December 31, 2019, 2018 and 2017, respectively. Distributions from our equity method investments are typically based on project-level cash flows from operations or other non-GAAP metrics, whereas equity earnings include non-cash expenses such as depreciation and amortization, investment impairments or changes in the fair value of derivative financial instruments.

The following summarizes the financial position at December 31, 2019, 2018 and 2017, and operating results for the years ended December 31, 2019, 2018 and 2017, respectively, for our proportional ownership interest in equity method investments:

	2019	2018	2017
Assets			
Current assets			
Frederickson	\$ 2.1	\$ 2.5	\$ 1.9
Orlando Cogen, LP	7.8	7.7	9.2
Koma Kulshan Associates ⁽¹⁾	—	—	0.5
Chambers Cogen, LP	14.4	15.6	17.3
Craven County Wood Energy, LP ⁽²⁾	4.4	—	—
Grayling Generating Station, LP ⁽²⁾	3.3	—	—
Non-current assets			
Frederickson	63.9	70.0	76.2
Orlando Cogen, LP	6.1	7.1	8.1
Koma Kulshan Associates ⁽¹⁾	—	—	4.7
Chambers Cogen, LP	56.5	117.4	130.9
Craven County Wood Energy, LP ⁽²⁾	5.8	—	—
Grayling Generating Station, LP ⁽²⁾	6.8	—	—
	<u>\$ 171.1</u>	<u>\$ 220.3</u>	<u>\$ 248.8</u>
Liabilities			
Current liabilities			
Frederickson	\$ 0.3	\$ —	\$ 0.4
Orlando Cogen, LP	10.2	10.3	10.3
Koma Kulshan Associates ⁽¹⁾	—	—	0.1
Chambers Cogen, LP	13.7	9.2	3.7
Craven County Wood Energy, LP ⁽²⁾	0.8	—	—
Grayling Generating Station, LP ⁽²⁾	0.5	—	—
Non-current liabilities			
Frederickson	0.5	0.5	0.4
Orlando Cogen, LP	—	—	—
Koma Kulshan Associates ⁽¹⁾	—	—	0.2
Chambers Cogen, LP	48.2	59.5	70.0
Craven County Wood Energy, LP ⁽²⁾	—	—	—
Grayling Generating Station, LP ⁽²⁾	0.3	—	—
	<u>\$ 74.5</u>	<u>\$ 79.5</u>	<u>\$ 85.1</u>

⁽¹⁾ In July 2018, we purchased the remaining 50% partnership interest in Koma and consolidated the project in our financial statements. See Note 3 *Acquisitions and divestments*.

⁽²⁾ In May 2019, we acquired the equity ownership interests held by AltaGas in Craven and Grayling. See Note 3 *Acquisitions and divestments*.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)
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Operating results	2019	2018	2017
Revenue			
Frederickson	\$ 36.0	\$ 21.0	\$ 21.6
Orlando Cogen, LP	61.5	60.2	55.0
Koma Kulshan Associates ⁽¹⁾	—	1.2	1.8
Chambers Cogen, LP	39.4	43.3	43.8
Selkirk Cogen Partners, LP ⁽²⁾	—	—	1.8
Craven County Wood Energy, LP ⁽³⁾	4.9	—	—
Grayling Generating Station, LP ⁽³⁾	2.2	—	—
	<u>144.0</u>	<u>125.7</u>	<u>124.0</u>
Project expenses			
Frederickson	26.9	14.1	21.0
Orlando Cogen, LP	28.5	30.1	29.4
Koma Kulshan Associates ⁽¹⁾	—	0.6	1.1
Chambers Cogen, LP	34.6	36.1	37.5
Selkirk Cogen Partners, LP ⁽²⁾	—	—	2.8
Craven County Wood Energy, LP ⁽³⁾	4.7	—	—
Grayling Generating Station, LP ⁽³⁾	1.8	—	—
	<u>96.5</u>	<u>80.9</u>	<u>91.8</u>
Project other expenses			
Frederickson	—	—	(28.4)
Orlando Cogen, LP	—	—	—
Koma Kulshan Associates ⁽¹⁾	—	—	—
Chambers Cogen, LP	(50.9)	(1.6)	(48.9)
Selkirk Cogen Partners, LP ⁽²⁾	—	—	(9.7)
Craven County Wood Energy, LP ⁽³⁾	—	—	—
Grayling Generating Station, LP ⁽³⁾	0.4	—	—
	<u>(50.5)</u>	<u>(1.6)</u>	<u>(87.0)</u>
Net income (loss)			
Frederickson	9.1	6.9	(27.8)
Orlando Cogen, LP	33.0	30.1	25.6
Koma Kulshan Associates ⁽¹⁾	—	0.6	0.7
Chambers Cogen, LP	(46.1)	5.6	(42.6)
Selkirk Cogen Partners, LP ⁽²⁾	—	—	(10.7)
Craven County Wood Energy, LP ⁽³⁾	0.2	—	—
Grayling Generating Station, LP ⁽³⁾	0.8	—	—
Equity in (loss) earnings of unconsolidated affiliates	<u>\$ (3.0)</u>	<u>\$ 43.2</u>	<u>\$ (54.8)</u>

⁽¹⁾ In July 2018, we purchased the remaining 50% partnership interest in Koma and consolidated the project in our financial statements. Amounts in the above table relate to the period Koma was accounted for under the equity method of accounting. See Note 3 *Acquisitions and divestments*.

⁽²⁾ In November 2017, we sold our 17.7% interest in Selkirk.

⁽³⁾ In May 2019, we acquired the equity ownership interests held by AltaGas in Craven and Grayling. See Note 3 *Acquisitions and divestments*.

During the year ended December 31, 2019, we recorded an investment impairment of \$49.2 million at our Chambers project. We recorded investment impairments of \$47.1 million, \$28.3 million and \$10.6 million, respectively, at our Chambers, Frederickson and Selkirk projects in the year ended December 31, 2017. These impairments are a component of the operating results in the table above. There were no impairment triggers during 2018 and accordingly

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no impairment tests were performed on equity method investments.

2019 – Event-driven test in the fourth quarter

Chambers

We own a 40% limited partner interest in Chambers Cogeneration Limited Partnership. The Chambers project operates under a PPA that expires in March 2024. Prior to our impairment analysis, Chambers was recorded as a \$58.2 million component of our equity investments in unconsolidated affiliates on the consolidated balance sheets.

In connection with the preparation of the long-term forecast during the fourth quarter of 2019, we performed an analysis of the post-PPA value of Chambers operating as a merchant facility. As a result, we identified a significant decrease in the long-term outlook for power prices and spark spreads in PJM, the region where Chambers operates. These forward power prices, which were obtained from a third party, including analysis of the forward prices for natural gas and coal, had a significant negative impact on the discounted cash flows of Chambers post-PPA. The estimated post-PPA value is a significant component of the project's overall value when compared to its carrying value of \$58.2 million.

When determining if this decrease in estimated fair value was other than temporary, we considered the likelihood that future conditions would change such that the gas and coal prices currently observed in the forward pricing models would become more favorable over time in order for the plant to be profitable in a merchant market. While declining power prices have been observed over the past several years, given that merchant curves have declined further than what was observed in 2017, it was our assessment that future merchant pricing and spark spreads were likely to remain low and that Chambers would be unable to recover its start fuel and start operations and maintenance costs after expiration of its PPA in 2024. Based on these factors, we determined that the decline in the fair value of our investment in Chambers was other than temporary. We recorded a \$49.2 million impairment in earnings (loss) from unconsolidated affiliates in the consolidated statements of operations for the year ended December 31, 2019.

2017 – Event-driven test in the fourth quarter

Frederickson

In the fourth quarter of 2017, we performed an impairment test of our investment in our Frederickson project. The Frederickson project operates under three PPAs that expire in August 2022. Prior to our impairment analysis, Frederickson was recorded as a \$108.3 million component of our equity investments in unconsolidated affiliates on the consolidated balance sheets.

We performed an analysis of the post-PPA value of Frederickson operating as a merchant facility. In our long-term forecast completed in December 2017, we identified a significant decrease in the long-term peak demand outlook for power prices in the Pacific Northwest, the region where Frederickson operates, which management determined to be an other than temporary decline in prices. These forward prices, which were obtained from a third party, had a significant negative impact on the estimated discounted cash flows of Frederickson post-PPA. The estimated post-PPA value is a significant component of the project's overall value when compared to its pre-impairment carrying value of \$108.3 million.

When determining if the decrease in fair value estimated in our 2017 test was other than temporary, we considered the likelihood that future conditions would change such that the power prices currently observed in the forward pricing models would become more favorable over time. Frederickson operates in a region with large, planned coal facility retirements and strong population growth. However, it was our assessment that natural gas prices were

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likely to remain low when considering the current and expected future supply of shale gas and that these factors would negatively impact future merchant pricing. Based on these factors, we determined that the decline in the fair value of our equity investment in Frederickson was other than temporary. We recorded a \$28.3 million impairment in earnings from unconsolidated affiliates in the consolidated statements of operations for the year ended December 31, 2017.

2017 – Event-driven test in the second quarter

In the second quarter of 2017, we performed event-driven impairment tests of our investments in our Chambers and Selkirk projects, which are accounted for under the equity method of accounting.

Selkirk

We previously owned a 17.7% limited partner interest in Selkirk Cogen Partners, L.P. The project operated as a merchant facility since the expiration of its PPA in August 2014. Since the expiration of its PPA, we did not receive a distribution from Selkirk and recorded a cumulative \$2.6 million project loss. Based on the project's history of providing no cash distributions while operating as a merchant facility, the short-term and long-term operational forecast, as well as the likelihood that further investment would be required in order to operate the facility, we determined that our investment in Selkirk was impaired and the decline in value was other than temporary. Accordingly, we recorded a \$10.6 million full impairment in earnings from unconsolidated affiliates in the consolidated statements of operations in the three months ended June 30, 2017. We sold our interest in Selkirk in November 2017 and recorded a \$1 million gain on sale in the year ended December 31, 2017. The impairment charge and the gain on sale are both recorded in earnings from unconsolidated affiliates in the statement of operations for the year ended December 31, 2017.

Chambers

Prior to our impairment analysis, Chambers was recorded as a \$124 million component of our equity investments in unconsolidated affiliates on the consolidated balance sheets.

During the second quarter of 2017, we performed an analysis of the post-PPA value of Chambers operating as a merchant facility. While declining power prices had been observed over the past several years, in our long-term forecast completed in July 2017, we identified a significant decrease in the long-term outlook for power prices in PJM, which management determined to be an other than temporary decline in prices. These forward power prices, which were obtained from a third party, including analysis of the forward prices for natural gas and coal, had a significant negative impact on the DCFs of Chambers post-PPA. The estimated post-PPA value is a significant component of the project's overall value when compared to its carrying value of \$124 million.

When determining if this decrease in fair value estimated in our event-driven 2017 test was other than temporary, we considered the likelihood that future conditions would change such that the gas and coal prices currently observed in the forward pricing models would become more favorable over time in order for the plant to be profitable in a merchant market. We also engaged a separate third party to provide its outlook on post-PPA value for Chambers. It was our assessment that future merchant pricing was likely to remain low due to lower natural gas prices from the current and expected future supply of shale gas. The third party provided similar conclusions to our assessment.

Based on these factors, we determined that the decline in the fair value of our equity investment in Chambers was other than temporary. We recorded a \$47.1 million impairment in earnings from unconsolidated affiliates in the consolidated statements of operations for the three months ended June 30, 2017.

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7. Inventory

Inventory consists of the following:

	December 31,	
	2019	2018
Parts and other consumables	\$ 12.2	\$ 9.6
Fuel	6.4	6.2
Total inventory	<u>\$ 18.6</u>	<u>\$ 15.8</u>

8. Property, plant and equipment, net

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

	December 31, 2019	December 31, 2018	Depreciable Lives
Land	\$ 6.4	\$ 5.3	
Office equipment, machinery and other	6.5	6.0	3 - 10 years
Leasehold improvements	2.1	2.1	7 - 15 years
Asset retirement obligation	23.4	24.1	1 - 43 years
Plant in service	848.1	874.4	1 - 45 years
Construction in progress	7.2	—	
	<u>893.7</u>	<u>911.9</u>	
Less accumulated depreciation	(391.6)	(362.4)	
Total property, plant and equipment, net	<u>\$ 502.1</u>	<u>\$ 549.5</u>	

Depreciation expense of \$37.6 million, \$40.0 million and \$83.3 million, was recorded for the years ended December 31, 2019, 2018 and 2017, respectively.

As described below, we recorded \$4.0 million and \$67.6 million of long-lived asset impairments to property, plant and equipment in the years ended December 31, 2019 and 2017, respectively, with a corresponding charge to Impairment in the statement of operations. No long-lived asset impairments to property, plant and equipment were recorded in the year ended December 31, 2018.

2019 – Event-driven test performed in fourth quarter

Calstock – Long-lived assets

Calstock operates under a PPA that expires in June 2020. The near-term expiration of the PPA resulted in a triggering event to test for long-lived asset impairment. We performed the test as of December 31, 2019, six months prior to the contract expiration date. Calstock's asset group for testing of long-lived assets totaled \$7.8 million consisting of \$2.3 million of net working capital, \$4.7 million property, plant and equipment ("PPE"), net and a \$0.8 million intangible PPA asset.

Because of the uncertainty of our ability to recontract the project, fair value of Calstock was determined based solely on the cash flows remaining under the current contract. If our efforts to recontract are unsuccessful, the project will be taken out of service but not decommissioned. Upon testing Calstock for long-lived asset impairment, the carrying value of the asset group exceeded the estimated cash flows. Accordingly, we recorded a \$4.7 million long-lived asset impairment in the year ended December 31, 2019, which is the difference between the fair value and carrying value of

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the reporting unit's asset group, \$0.7 million of the impairment related to intangible PPA assets and \$4.0 million of the impairment related to property, plant and equipment. We also recorded impairment losses of \$1.1 million related to spare parts inventory at Calstock. The Calstock biomass plant is a component of our Solid Fuel segment.

2018 – Event-driven test performed in fourth quarter

Williams Lake – Long-lived assets

Williams Lake previously operated under a PPA that expired June 30, 2019, or September 30, 2019 at the option of BC Hydro, the project's customer. The near-term expiration of the PPA resulted in a triggering event to test for long-lived asset impairment. We performed the test as of December 31, 2018, six months prior to the earliest contract expiration date. Williams Lake's asset group for testing of long-lived assets totaled \$11.4 million consisting of PPE, net and spare parts inventory.

Because of the uncertainty of our ability to recontract the project, we performed a probability-based approach when determining the weighted average fair value of Williams Lake. This approach considered the cash flows remaining under the current contract assuming a September 30, 2019 expiration date, as well as a modeled hypothetical long-term extension. In February 2019, the office of the Minister of Energy, Mines and Petroleum Resources in British Columbia made recommendations that the government could direct BC Hydro to pursue renewal transactions for existing biomass plants with expiring contracts. We considered these factors when creating our modeled hypothetical long-term extension. This model incorporates significant judgments and estimates by management when determining outcome likelihood, as well as long-term extension economics. Williams Lake has approximately 20 years of remaining useful life. We believe that Williams Lake provides value to British Columbia based on its positioning as a renewable resource, its synergy with the local forestry industry and its lower \$/KW cost than new biomass construction.

Upon testing Williams Lake for long-lived asset impairment, the estimated weighted-average undiscounted cash flows exceeded the carrying value of the asset group. Accordingly, no long-lived asset impairment was recorded at December 31, 2018. We subsequently executed a new ten-year Energy Purchase Agreement with BC Hydro for Williams Lake, which became effective October 1, 2019.

2017 – Event-driven test performed in fourth quarter

Williams Lake – Long-lived assets

Williams Lake previously operated under a PPA that expired on March 31, 2018 with BC Hydro. BC Hydro elected not to exercise its renewal options under that PPA. Additionally, the Province of British Columbia planned to commence an Integrated Resource Plan Process (IRP) in late 2018. This process is the Province's long-term plan to meet future electricity demand through conservation, generation and transmission and through upgrades to existing infrastructure. At the time of our assessment, we believed that obtaining a long-term PPA extension prior to the conclusion of the IRP was unlikely. In January 2018, the project entered into a PPA extension that commenced on April 1, 2018 and expires June 30, 2019, or September 30, 2019 at the option of BC Hydro. The project entered into this extension in order to bridge the period of the expiration of the previous PPA in March 2018 until the conclusion of the IRP in order to increase the likelihood for the potential of a future long-term extension. The uncertainty of the results of the IRP resulted in a triggering event to test for long-lived asset impairment. We performed the test as of December 31, 2017 in order to include the economics of the January 2018 extension in our long-term cash flow forecasts as the terms

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of the extension were known at December 31, 2017. Williams Lake's asset group for testing of long-lived assets totaled \$40.0 million consisting of \$39.4 million in PPE, net and a \$0.6 million intangible PPA asset.

Because of the uncertainty of the results of the IRP, we performed a probability-based approach when determining the weighted average fair value of Williams Lake. This approach considered the cash flows under the January 2018 extension, as well as a modeled long-term extension post-IRP incorporating similar economics to the 2018 extension with some additional allowances. These factors incorporated significant judgments and estimates by management when determining outcome likelihood, as well as long-term extension economics. Williams Lake has approximately 22 years of remaining useful life. We believe that Williams Lake provides value to the Province's long-term plan based on its positioning as a renewable resource, its synergy with the local forestry industry and its lower \$/KW cost than new biomass construction.

Upon testing Williams Lake for long-lived asset impairment, the carrying value of the asset group exceeded the estimated weighted-average undiscounted cash flows. Because Williams Lake failed the recovery test, we calculated the estimated weighted-average fair value utilizing a probability-based DCF and recorded a \$29.1 million long-lived asset impairment in the year ended December 31, 2017, which is the difference between the fair value and carrying value of the reporting unit's asset group. The impairment was allocated as a \$0.6 million full impairment of intangible PPA assets and a \$28.5 million partial impairment of property, plant and equipment. The Williams Lake biomass plant is a component of our Solid Fuel segment.

2017 – Event-driven test performed in third quarter

In the third quarter of 2017, we performed event-driven long-lived asset impairment tests at Naval Station, North Island and Naval Training Center ("NTC") (collectively, the "San Diego Projects").

The San Diego Projects sold power to San Diego Gas & Electric ("SDG&E") under PPAs that were scheduled to expire in December 2019. In addition, the three projects supplied steam to the U.S. Navy under agreements that provided these projects with the right to use the property at the respective sites on which each project is located (the "Navy agreements"). In August 2017, we were unsuccessful in obtaining contracts to provide the Navy with energy security that would have provided us with the right to continue using the sites beyond February 2018. Following notification of the outcome of the Navy solicitation, we determined that it was unlikely that any of these projects will operate beyond the expiration of the Navy agreements. As a result, we performed long-lived asset impairment tests at each of these projects as of July 31, 2017.

In order to test the recoverability of the long-lived assets in the asset groups, we compared the carrying amount of the assets to estimated undiscounted future cash flows expected to be generated by each of the San Diego Projects through their expected decommissioning dates. The carrying value of each asset group includes its recorded property, plant equipment and intangible assets related to PPAs. As a result of this test, we recorded a total \$57.3 million impairment (\$22.5 million at Naval Station, \$13.5 million at NTC and \$21.2 million at North Island) in the year ended December 31, 2017. This impairment is composed of an \$18.2 million full impairment of intangible assets related to PPAs (\$10.3 million at Naval Station, \$3.6 million at NTC and \$4.2 million at North Island) and a \$39.1 million partial impairment of property, plant and equipment (\$12.1 million at Naval Station, \$9.9 million at NTC and \$17.0 million at North Island). At December 31, 2017, the San Diego projects' remaining property, plant and equipment represent our estimate of the projects' remaining undiscounted cash flows and salvage values.

We were unable to extend our land use license agreements through the end of our PPAs and ceased operations at these plants on February 7, 2018. The San Diego Projects are components of our Natural Gas segment.

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9. Goodwill

The following table presents goodwill by reportable segment for the years ended December 31, 2019 and 2018:

	<u>Segment</u>	<u>2019</u>	<u>2018</u>
Curtis Palmer	Hydroelectric	\$ 14.4	\$ 14.4
Morris	Natural Gas	3.3	3.3
Nipigon	Natural Gas	3.6	3.6
Total		<u>\$ 21.3</u>	<u>\$ 21.3</u>

Goodwill Impairment Testing

We perform our annual goodwill impairment test as of November 30 and update the test between annual tests if events or circumstances occur that would more likely than not reduce the fair value of a reporting unit below its carrying value.

Based on the results of the annual goodwill impairment tests for years ended December 31, 2019 and 2018, management determined that no adjustment to the carrying value for any reporting unit was necessary because in all cases, the estimated fair values of the reporting units exceeded their respective carrying values. The fair value of all reporting units was determined using an income approach and considered project-specific assumptions for the future discounted cash flows.

For the year ended December 31, 2019, we performed a quantitative test at each reporting unit. For the year ended December 31, 2018, we performed a quantitative test at our Curtis Palmer reporting unit and qualitative assessments at our Morris and Nipigon reporting units. Curtis Palmer's fair value exceeded its carrying value by approximately \$8.3 million or 9% at November 30, 2018.

In the fourth quarter of 2017, based on the results of the annual quantitative goodwill impairment test, management determined that the fair value of the Curtis Palmer reporting unit was below its respective carrying value, including goodwill. Accordingly, we recorded a \$14.7 million goodwill impairment at Curtis Palmer during the year ended December 31, 2017. Subsequent to the impairment, Curtis Palmer has \$14.4 million of goodwill remaining at December 31, 2017. As a hydro facility, Curtis Palmer has substantial useful life beyond the expiration of its PPA in 2027. Estimates of fair value beyond the end of its PPA expiration utilize merchant pricing assumptions and are sensitive to changes in forward power prices. These forward prices declined significantly from those observed in our 2016 test, resulting in a reduction of the fair value from our impairment test performed in the fourth quarter of 2016.

The other remaining reporting units with goodwill recorded, Nipigon (\$3.6 million of goodwill at December 31, 2017) and Morris (\$3.3 million of goodwill at December 31, 2017), had fair values that exceeded their carrying values by approximately \$111.7 million or 118% and accordingly, no goodwill impairment was recorded as of December 31, 2017.

10. PPAs and other definite-lived intangible assets and liabilities

Other intangible assets and liabilities include PPAs, fuel supply agreements and capitalized development costs.

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The following tables summarize the components of our intangible assets and other liabilities subject to amortization at December 31, 2019 and 2018:

Assets

	Other Intangible Assets, Net	
	Power Purchase Agreements	Total
Gross balances, December 31, 2019	\$ 365.6	\$ 365.6
Less: accumulated amortization	(221.3)	(221.3)
Net carrying amounts, December 31, 2019	<u>\$ 144.3</u>	<u>\$ 144.3</u>

	Other Intangible Assets, Net	
	Power Purchase Agreements	Total
Gross balances, December 31, 2018	\$ 362.7	\$ 362.7
Less: accumulated amortization	(192.6)	(192.6)
Net carrying amounts, December 31, 2018	<u>\$ 170.1</u>	<u>\$ 170.1</u>

Liabilities

	Power Purchase and Fuel Supply Agreement Liabilities, Net		
	Power Purchase Agreements	Fuel Supply Agreements	Total
Gross balances, December 31, 2019	\$ (28.1)	(12.6)	\$ (40.7)
Less: accumulated amortization	14.4	6.5	20.9
Net carrying amounts, December 31, 2019	<u>\$ (13.7)</u>	<u>\$ (6.1)</u>	<u>\$ (19.8)</u>

	Power Purchase and Fuel Supply Agreement Liabilities, Net		
	Power Purchase Agreements	Fuel Supply Agreements	Total
Gross balances, December 31, 2018	\$ (28.7)	(12.6)	\$ (41.3)
Less: accumulated amortization	14.0	6.1	20.1
Net carrying amounts, December 31, 2018	<u>\$ (14.7)</u>	<u>\$ (6.5)</u>	<u>\$ (21.2)</u>

The following table presents amortization expense of intangible assets for the years ended December 31, 2019, 2018 and 2017:

	2019	2018	2017
PPAs	\$ 26.4	\$ 43.4	\$ 36.5
Fuel supply agreements	(0.4)	(0.4)	(0.4)
Total amortization	<u>\$ 26.0</u>	<u>\$ 43.0</u>	<u>\$ 36.1</u>

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The following table presents estimated future amortization expense for the next five years:

Year Ended December 31,	
2020	\$ 22.1
2021	20.2
2022	15.9
2023	12.6
2024	12.6

The weighted average remaining amortization period related to our intangible assets and liabilities was 8.6 years as of December 31, 2019.

11. Other long-term liabilities

Other long-term liabilities consist of the following at December 31:

	2019	2018
Long-term contract liability	\$ 0.2	\$ —
Net pension liability	1.2	1.2
Accrued LTIP and director share units	1.6	1.4
Other	1.7	2.4
	<u>\$ 4.7</u>	<u>\$ 5.0</u>

The following table is a rollforward of asset retirement obligations for the years ended December 31:

	2019	2018
Asset retirement obligations beginning of year	\$ 49.2	\$ 45.3
Accretion and change in estimate of asset retirement obligation	2.3	4.3
Acquisition	—	1.8
Costs incurred	(1.0)	(0.5)
Translation adjustments	1.0	(1.7)
Asset retirement obligations, end of year	<u>\$ 51.5</u>	<u>\$ 49.2</u>

In the third quarter of 2017, we performed an event-driven long-lived asset impairment test at our Naval Station, North Island and Naval Training Center projects. See Note 8, *Property, plant and equipment* for discussion of the facts and circumstances resulting in the impairment. At the time of the assessment, we had not completed our process for estimating decommissioning costs at those facilities. In the fourth quarter of 2017, based on information provided by third parties, we determined that the estimated costs to remove the facilities and return the land to the conditions required under their respective land rights agreements was approximately \$1.7 million. Prior to adjustment, we had recorded asset retirement obligations for Naval Station, North Island and Naval Training Center of \$6.7 million. These retirement obligations were based on estimates made at the time of their acquisition in November 2011, as well as engineering studies performed at the inception of these projects. These asset retirement obligations were accreted based on inflation and discount rates. As a result of the change in estimate for decommissioning costs, we recorded a \$5.0 million decrease to amortization expense in the fourth quarter of 2017. These projects ceased operations in February 2018. Subsequent to their shutdown, we have been actively planning the decommissioning of these facilities. Although the process is not final, changes to both the scope and cost of decommissioning these facilities resulted in a change of estimate of the asset retirement obligation. We increased the asset retirement obligation by \$1.4 million and \$3.5 million and recorded a corresponding decommissioning loss in the consolidated statements of operations for the years ended December 31,

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2019 and 2018, respectively.

12. Long-term debt

Long-term debt consists of the following:

	December 31, 2019	December 31, 2018	Interest Rate
Recourse Debt:			
Senior secured term loan facility, due 2025 ⁽¹⁾	\$ 380.0	\$ 450.0	LIBOR ⁽²⁾ plus 2.75 %
Senior unsecured notes, due June 2036 (Cdn\$210.0)	161.7	154.0	5.95 %
Non-Recourse Debt:			
Cadillac term loan, due 2025 ⁽³⁾	18.7	21.0	LIBOR plus 1.61 %
Less: unamortized discount	(5.8)	(9.0)	
Less: unamortized deferred financing costs	(4.7)	(7.2)	
Less: current maturities	(76.4)	(68.1)	
Total long-term debt	<u>\$ 473.5</u>	<u>\$ 540.7</u>	

Current maturities consist of the following:

	December 31, 2019	December 31, 2018	Interest Rate
Current Maturities:			
Senior secured term loan facility, due 2025 ⁽¹⁾	\$ 72.5	\$ 65.0	LIBOR ⁽²⁾ plus 2.75 %
Cadillac term loan, due 2025 ⁽³⁾	3.9	3.1	LIBOR plus 1.61 %
Total current maturities	<u>\$ 76.4</u>	<u>\$ 68.1</u>	

- ⁽¹⁾ On a quarterly basis, we make a cash sweep payment to fund the principal balance, based on terms as defined in the Credit Agreement and disclosed below. The portion of the Term Loan classified as current is based on principal payments required to reduce the aggregate principal amount of Term Loan outstanding to achieve a target principal amount that declines quarterly based on a pre-determined specified schedule.
- ⁽²⁾ LIBOR cannot be less than 1.00%. We have entered into interest rate swap agreements to mitigate the exposure to changes in LIBOR for \$370.6 million of the \$380.0 million remaining aggregate borrowings under our Term Loan at December 31, 2019. See Note 15, *Accounting for derivative instruments and hedging activities* for further details. On January 31, 2020, the repricing of the Term Loan became effective, reducing the interest rate to LIBOR plus 2.50% with no change to the 1.00% LIBOR floor. The maturity date for the Term Loan was also extended to April 2025. The repricing also adds customary new provisions relating to the replacement of LIBOR as the benchmark for the Eurodollar Rate (as defined in the Credit Agreement) replacement.
- ⁽³⁾ We have entered into interest rate swap agreements to economically fix our exposure to changes in interest rates for this non-recourse debt. See Note 15, *Accounting for derivative instruments and hedging activities*, for further details.

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Principal payments on the maturities of our debt due in the next five years and thereafter are as follows:

2020	\$ 76.4
2021	95.7
2022	109.3
2023	63.3
2024	39.7
Thereafter	176.0
	<u>\$ 560.4</u>

Credit Facilities

On April 13, 2016, APLP Holdings, our wholly-owned subsidiary, entered into new Senior Secured Credit Facilities, comprising \$700 million in aggregate principal amount of Senior Secured Term Loan facilities (the “Term Loan”) and \$200 million in aggregate principal amount of senior secured credit facilities (the “Revolver” and together with the Term Loan, the “Credit Facilities”). At December 31, 2019, \$380.0 million of the Term Loan is outstanding and letters of credit in an aggregate face amount of \$78.3 million are issued (but not drawn) pursuant to the revolving commitments under the Revolver and used (i) to fund a debt service reserve in an amount equivalent to six months of debt service, and (ii) to support contractual credit support obligations of APLP Holdings and its subsidiaries and of certain other affiliates of the Company.

Borrowings under Credit Facilities are available in U.S. dollars and Canadian dollars and, at inception, bore interest at a rate equal to the Adjusted Eurodollar Rate, the Base Rate or the Canadian Prime Rate as applicable, plus an applicable margin between 4.00% and 5.00% that varied depending on whether the loan is a Eurodollar Rate Loan, Base Rate Loan, or Canadian Prime Rate Loan. In April 2017, the repricing of the Credit Facilities became effective reducing the interest rate margin on the Term Loan and Revolver by 0.75% to LIBOR plus 4.25%. In October 2017, a second repricing reduced the interest rate margin on the Credit Facilities by another 0.75% to LIBOR plus 3.50%. In April 2018, a third repricing reduced the interest rate margin on the Credit Facilities by an additional 0.50% to LIBOR plus 3.00% and in October 2018, a fourth repricing reduced the interest rate margin on the Credit Facilities by 0.25% to LIBOR plus 2.75%.

In January 2020, APLP Holdings completed the repricing of the \$380 million Term Loan and Revolver. As a result of the repricing, the interest rate margin on the Term Loan and the Revolver was reduced by 0.25% to LIBOR plus 2.50% with no change to the 1.00% LIBOR floor. An additional 0.25% step down in the interest rate margin will become effective in the event the Leverage Ratio (as defined in the Credit Agreement) is 2.75:1.00. Additionally, APLP Holdings amended its existing Term Loan to extend the maturity date by two years to April 2025. The repricing also adds customary new provisions relating to the replacement of LIBOR as the benchmark for the Eurodollar Rate (as defined in the Credit Agreement) replacement. The Revolver will mature in April 2022. Targeted debt balances were adjusted to reflect the previously announced anticipated closing of the sale of our Manchief power plant in 2022, resulting in lower targeted debt repayment in 2020 and higher targeted debt repayment in 2022 as compared to the previous schedule.

The Term Loan includes a 3% original issue discount. Letters of credit are available to be issued under the Revolver until 30 days prior to the Letter of Credit Expiration Date under, and as defined in, the Credit Agreement. In addition to paying interest on outstanding principal under the Credit Facilities, APLP Holdings is required to pay a commitment fee of 0.75% times the unused commitments under the Revolver.

The Credit Facilities are secured by a pledge of the equity interests in APLP Holdings and certain of its subsidiaries, guaranties from certain of the subsidiaries of APLP Holdings (the “Subsidiary Guarantors”), a downstream

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guarantee from the Company, a limited recourse guaranty from Atlantic Power GP II, Inc., the entity that holds all of the equity interest in APLP Holdings, a pledge of certain material contracts and certain mortgages over material real estate rights, an assignment of all revenues, funds and accounts of APLP Holdings and its subsidiaries (subject to certain exceptions), and certain other assets. The Credit Facilities also have the benefit of a debt service reserve account, which is required to be funded and maintained at the debt service reserve requirement, equal to six months of debt service. The reserve requirement is maintained utilizing a letter of credit. APLP, a wholly-owned, indirect subsidiary of the Company, is a party to an existing indenture governing its Cdn\$210 million aggregate principal amount of MTNs that prohibits APLP (subject to certain exceptions) from granting liens on its assets (and those of its material subsidiaries) to secure indebtedness, unless the MTNs are secured equally and ratably with such other indebtedness. Accordingly, in connection with the execution of the Credit Agreement, APLP Holdings has granted an equal and ratable security interest in the collateral package securing the Credit Facilities in favor of the trustee under the indenture governing the MTNs for the benefit of the holders of the MTNs.

The Credit Agreement contains customary representations, warranties, terms and conditions, and covenants. The negative covenants include a requirement that APLP Holdings and its subsidiaries maintain a Leverage Ratio (as defined in the Credit Agreement) ranging from 5.00:1.00 at December 2019 to 4.25:1.00 from June 30, 2020, and an Interest Coverage Ratio (as defined in the Credit Agreement) ranging from 3.25:1.00 at December 31, 2019 to 4.00:1.00 from June 30, 2022. At December 31, 2019, we were in compliance with these covenants. In addition, the Credit Agreement includes customary restrictions and limitations on APLP Holdings' and its subsidiaries' ability to (i) incur additional indebtedness, (ii) grant liens on any of their assets, (iii) change their conduct of business or enter into mergers, consolidations, reorganizations, or certain other corporate transactions, (iv) dispose of assets, (v) modify material contractual obligations, (vi) enter into affiliate transactions, (vii) incur capital expenditures, and (viii) make dividend payments or other distributions, in each case subject to certain exceptions and other customary carve-outs and various thresholds. Specifically, APLP Holdings may be restricted from making dividend payments or other distributions to Atlantic Power Corporation, and APLP and its subsidiaries may be prohibited from making dividends or distributions to Atlantic Power Preferred Equity Limited shareholders in the event of a covenant default or if APLP Holdings fails to achieve a target principal amount on the new Term Loan that declines quarterly based on a predetermined specified schedule.

Under the Credit Agreement, if a Change of Control (as defined in the Credit Agreement) occurs, unless APLP Holdings elects to make a voluntary prepayment of the Term Loan under the Credit Facilities, it will be required to offer each electing lender a prepayment of such lender's term loan under the Credit Facilities at a price equal to 101% of par. In addition, in the event that APLP Holdings elects to repay, prepay, refinance or replace all or any portion of the Term Loan within six months from the repricing date under the Credit Agreement, it will be required to do so at a price of 101% of the principal amount so repaid, prepaid, refinanced or replaced.

The Credit Agreement also contains a mandatory amortization feature and other mandatory prepayment provisions, including prepayments:

- from the proceeds of asset sales (except from the sale proceeds of certain excluded projects), insurance proceeds, and incurrence of indebtedness, in each case subject to applicable thresholds and customary carve-outs; and
- with respect to excess cash flows, to be determined by using the greater of (i) 50% of the cash flow of APLP Holdings and its subsidiaries that remains after the application of funds, in accordance with a customary priority, to operations and maintenance expenses of APLP Holdings and its subsidiaries, debt service on the Credit Facilities and the MTNs, funding of the debt service reserve account, debt service on other permitted debt of APLP Holdings and its subsidiaries, capital expenditures permitted under the Credit Agreement, and payment on the preferred equity issued by Atlantic Power Preferred Equity Ltd., a

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subsidiary of APLP Holdings or (ii) such other amount up to 100% of the cash flow described in clause (i) above that is required to reduce the aggregate principal amount of Term Loan outstanding to achieve a target principal amount that declines quarterly based on a pre-determined specified schedule. Failure to achieve the specified target principal amount for any quarter does not constitute a default by APLP Holdings.

Under certain conditions the lending commitments under the Credit Agreement may be terminated by the lenders and amounts outstanding under the Credit Agreement may be accelerated. Such events of default include failure to pay any principal, interest or other amounts when due, failure to comply with covenants, breach of representations or warranties in any material respect, non-payment or acceleration of other material debt of APLP Holdings and its subsidiaries, bankruptcy, material judgments rendered against APLP Holdings or certain of its subsidiaries, certain ERISA or regulatory events, a Change of Control of APLP Holdings (solely with respect to the Revolver), or defaults under certain guaranties and collateral documents securing the Credit Facilities, in each case subject to various exceptions and notice, cure and grace periods.

Notes of the Partnership

Atlantic Power Limited Partnership (the “Partnership”), a wholly-owned subsidiary acquired on November 5, 2011, has outstanding Cdn\$210.0 million (\$161.7 million as of December 31, 2019) aggregate principal amount of 5.95% senior unsecured notes, due June 2036 (MTNs). Interest on the MTNs is payable semi-annually at 5.95%. Pursuant to the terms of the MTNs, we must meet certain financial and other covenants, including a financial covenant generally based on the ratio of debt to capitalization of the Partnership. At December 31, 2019, we were in compliance with these covenants. The MTNs are guaranteed by Atlantic Power Corporation and Atlantic Power Preferred Equity Ltd., an indirect, wholly-owned subsidiary acquired in connection with the acquisition of the Partnership.

Non-Recourse Debt

Project-level debt at our consolidated projects is secured by the respective project and its contracts with no other recourse to us. Project-level debt generally amortizes during the term of the respective revenue-generating contracts of the projects. The loans have certain financial covenants that must be met in order to distribute available cash. At December 31, 2019, all of our projects were in compliance with the covenants contained in project-level debt. Projects that do not meet their debt service coverage ratios are limited from making distributions, but the debt is not callable or subject to acceleration under the terms of their debt agreements.

13. Convertible debentures

The following table provides details related to outstanding convertible debentures:

	December 31, 2019	December 31, 2018
6.00% Debentures due January 2025 (Series E) (Cdn \$115.0 million)	\$ 88.5	\$ 84.3
6.00% Debentures due December 2019 (Series D) (Cdn \$24.7 million)	—	18.1
Less: Unamortized deferred financing costs	(3.8)	(4.6)
Less: Unamortized discount	(3.6)	(4.0)
Total current and long-term convertible debentures	\$ 81.1	\$ 93.8

On April 10, 2019, we redeemed, in full, the aggregate principal amount of Cdn\$24.7 million of the outstanding 6.00% Debentures due December 2019 (the “Series D Debentures”) and paid accrued interest of Cdn\$0.4 million.

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Series E Debentures

On January 29, 2018, we closed the Series E Debentures Offering of Cdn\$100 million aggregate principal amount of Series E Debentures. We also granted the underwriters the option to purchase up to an additional Cdn\$15 million aggregate principal amount of Series E Debentures at any time up to 30 days after the date of closing of the Series E Debentures offering to cover over-allotments. The underwriters exercised that option, for the full Cdn\$15 million aggregate principal amount, on February 2, 2018.

The Series E Debentures have a maturity date of January 31, 2025. The Series E Debentures bear interest at a rate of 6.00% per year, and are convertible into our common shares at an initial conversion rate of approximately 238.0952 common shares per Cdn\$1,000 principal amount, representing a conversion price of Cdn\$4.20 per common share. The Series E Debentures may not be redeemed by the Company prior to January 31, 2021 (except in certain limited circumstances following a change of control). On and after January 31, 2021 and prior to January 31, 2023, the Series E Debentures may be redeemed by us, in whole or in part from time to time, on not more than 60 days and not less than 30 days prior notice at a redemption price equal to their principal amount plus accrued and unpaid interest, if any, up to but excluding the date set for redemption, provided that the daily volume-weighted average trading price of our common shares on the Toronto Stock Exchange, averaged for the 20 consecutive trading days ending five trading days prior to the date on which notice of redemption is provided, is not less than 125% of the conversion price at the time notice of redemption is given. On and after January 31, 2023 and prior to the maturity date, the Series E Debentures may be redeemed in whole or in part from time to time, on not more than 60 days and not less than 30 days prior notice, at a redemption price equal to their principal amount plus accrued and unpaid interest, if any, up to but excluding the date set for redemption. The Series E Debentures are our direct, subordinated, unsecured obligations and rank equally with the other series of debentures and with all other future subordinated unsecured indebtedness and rank subordinate to all of our existing and future senior indebtedness.

On the initial closing date, we received net proceeds from the Series E Debentures offering, after deducting the underwriting fee and expenses, of approximately Cdn\$94.7 million. We received an additional Cdn\$14.4 million of net proceeds from the exercise of the over-allotment option. On March 2, 2018, we redeemed all of the \$42.5 million remaining principal amount of Series C Debentures with the use of a portion of the proceeds from the Series E Debentures Offering. On March 3, 2018, we redeemed Cdn\$56.2 million principal amount of the Series D Debentures with the remaining proceeds from the Series E Debentures Offering.

Series E Conversion Option

We assessed the conversion option of the Series E Debentures and determined it should be separated from the host instrument and accounted for as an embedded derivative liability as the conversion option is in a currency different from our functional currency. Changes in the fair value of the conversion option derivative are recorded in the consolidated statements of operation. The conversion option derivative was initially measured at fair value (\$4.7 million), with the host contract carried at a value equal to the difference between the carrying value of the Series E Debenture and the fair value of the derivative. Accordingly, no gain or loss was recorded on the initial measurement of the derivative. The fair value of the conversion option derivative liability was \$3.2 million and \$1.2 million at December 31, 2019 and December 31, 2018, respectively. The portion of the proceeds allocated to the separated derivative also created a discount of \$4.7 million, which will be amortized to interest expense over the maturity period of the Series E Debentures. For additional information, see Note 15, *Accounting for derivative instruments and hedging activities*.

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14. Fair value of financial instruments

The estimated carrying values and fair values of our recorded financial instruments related to operations are as follows:

	December 31,			
	2019		2018	
	Carrying Amount	Fair Value	Carrying Amount	Fair Value
Cash and cash equivalents	\$ 74.9	\$ 74.9	\$ 68.3	\$ 68.3
Restricted cash	7.7	7.7	2.1	2.1
Derivative assets current	0.7	0.7	4.2	4.2
Derivative assets non-current	—	—	0.3	0.3
Derivative liabilities current	12.0	12.0	4.5	4.5
Derivative liabilities non-current	15.9	15.9	15.4	15.4
Long-term debt, including current portion	560.4	589.5	625.0	607.6
Convertible debentures	88.5	93.0	102.4	101.8

Our financial instruments that are recorded at fair value have been classified into levels using a fair value hierarchy.

The three levels of the fair value hierarchy are defined below:

Level 1—Unadjusted quoted prices available in active markets for identical assets or liabilities as of the reporting date. Financial assets utilizing Level 1 inputs include active exchange-traded securities.

Level 2—Quoted prices available in active markets for similar assets or liabilities, quoted prices for identical or similar assets or liabilities in inactive markets, inputs other than quoted prices that are directly observable, and inputs derived principally from market data.

Level 3—Unobservable inputs from objective sources. These inputs may be based on entity-specific inputs. Level 3 inputs include all inputs that do not meet the requirements of Level 1 or Level 2.

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The following represents the recurring measurements of fair value hierarchy of our financial assets and liabilities that were recognized at fair value as of December 31, 2019 and December 31, 2018. Financial assets and liabilities are classified based on the lowest level of input that is significant to the fair value measurement.

	December 31, 2019			
	Level 1	Level 2	Level 3	Total
Assets:				
Cash and cash equivalents	\$ 74.9	\$ —	\$ —	\$ 74.9
Restricted cash	7.7	—	—	7.7
Derivative instruments asset	—	0.7	—	0.7
Total	\$ 82.6	\$ 0.7	\$ —	\$ 83.3
Liabilities:				
Derivative instruments liability	\$ —	\$ 24.7	\$ 3.2	\$ 27.9
Total	\$ —	\$ 24.7	\$ 3.2	\$ 27.9

	December 31, 2018			
	Level 1	Level 2	Level 3	Total
Assets:				
Cash and cash equivalents	\$ 68.3	\$ —	\$ —	\$ 68.3
Restricted cash	2.1	—	—	2.1
Derivative instruments asset	—	4.5	—	4.5
Total	\$ 70.4	\$ 4.5	\$ —	\$ 74.9
Liabilities:				
Derivative instruments liability	\$ —	\$ 18.7	\$ 1.2	\$ 19.9
Total	\$ —	\$ 18.7	\$ 1.2	\$ 19.9

For cash and cash equivalents and restricted cash, the carrying amount approximates fair value because of the short-term maturity of those instruments and are classified as Level 1 within the fair value hierarchy.

The fair values of our derivative instruments are based upon trades in liquid markets. Valuation model inputs can generally be verified and valuation techniques do not involve significant judgment. The fair values of such financial instruments are classified within Level 2 of the fair value hierarchy. We use our best estimates to determine the fair value of commodity and derivative contracts we hold. These estimates consider various factors including closing exchange prices, time value, volatility factors and credit exposure. The fair value of each contract is discounted using a risk free interest rate.

We also adjust the fair value of financial assets and liabilities to reflect credit risk, which is calculated based on our credit rating and the credit rating of our counterparties. As of December 31, 2019, the credit valuation adjustments resulted in a \$1.1 million net increase in fair value, which consists of a \$0.1 million pre-tax gain in other comprehensive income and a \$1.0 million gain in change in fair value of derivative instruments. As of December 31, 2018, the credit valuation adjustments resulted in a \$1.0 million net increase in fair value, which consists of a \$0.1 million pre-tax gain in other comprehensive income and a \$0.9 million gain in change in fair value of derivative instruments.

The carrying amounts for cash and cash equivalents and restricted cash approximate fair value due to their short-term nature. The fair value of long-term debt and convertible debentures was determined using quoted market prices, as well as discounting the remaining contractual cash flows using a rate at which we could issue debt with a similar maturity as of the balance sheet date.

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The conversion option derivative for the Series E Debentures is classified within Level 3 of the fair value hierarchy. The significant unobservable inputs used in developing fair value include the volatility of our common shares and the fair value of the host contract, which is derived from recent similar convertible debenture offerings from peer companies. A discounted cash flow valuation technique is utilized to calculate the fair value of the conversion option derivative.

The following table reconciles, for the year ended December 31, 2019, the beginning and ending balances for the conversion option derivative liability that is recognized at fair value in the consolidated financial statements, using significant unobservable inputs:

	Fair value Measurement Using Significant Unobservable Inputs (Level 3) Year Ended December 31, 2019
Beginning balance of liability at January 1, 2019	\$ 1.2
Total unrealized loss	1.8
Currency transaction loss	0.2
Ending balance of liability at December 31, 2019	<u>\$ 3.2</u>

15. Accounting for derivative instruments and hedging activities

We recognize all derivative instruments on the balance sheet as either assets or liabilities and measure them at fair value each reporting period. We have one contract designated as a cash flow hedge, and we defer the effective portion of the change in fair value of the derivatives in accumulated other comprehensive (loss) income, until the hedged transactions occur and are recognized in (loss) earnings. The ineffective portion of a cash flow hedge is immediately recognized in (loss) earnings. For our other derivatives that are not designated as cash flow hedges, the changes in the fair value are immediately recognized in (loss) earnings. These guidelines apply to our natural gas swaps, interest rate swaps, and foreign exchange contracts.

Gas purchase and sale agreements

We have a gas purchase agreement at our Nipigon project that expires on December 31, 2022 under which we purchase a minimum of 6,500 Gigajoules (“Gj”) of natural gas per day at a price of Cdn\$4.57 per Gj. This agreement does not qualify for the normal purchase normal sales (“NPNS”) exemption and is accounted for as a derivative financial instrument because we could not conclude that it is probable that this contract will not settle net and will result in physical delivery. This derivative financial instrument is recorded in the consolidated balance sheets at fair value and the changes in its fair market value is recorded in the consolidated statements of operations. We also have a corresponding gas sales agreement at Nipigon, whereby 6,500 Gj of natural gas per day is sold at the spot market price. This contract is not accounted for as a derivative.

On April 23, 2019, we also entered into natural gas purchase agreements at our Morris project for approximately 700,000 MMBtu to effectively mitigate seasonal fluctuations of future natural gas prices from January 2020 through February 2020. This contract is accounted for as a derivative financial instrument and is recorded in the consolidated balance sheet at fair value. Changes in the fair market value of this contract are recorded in the consolidated statement of operations.

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Natural gas swaps

Our strategy to mitigate future exposure to changes in natural gas prices at our projects consists of periodically entering into financial swaps that effectively fix the price of natural gas expected to be purchased at these projects. These natural gas swaps are derivative financial instruments and are recorded in the consolidated balance sheets at fair value and the changes in their fair market value are recorded in the consolidated statements of operations.

We have entered into various natural gas swaps to effectively fix the price of 16.3 million MMBtu of future natural gas purchases at our Orlando project, which is approximately 100% of our share of the expected natural gas purchases in 2020 through 2023. These contracts are accounted for as derivative financial instruments and are recorded in the consolidated balance sheet at fair value at December 31, 2019. Changes in the fair market value of these contracts are recorded in the consolidated statement of operations.

Interest rate swaps

APLP Holdings has entered into several interest rate swap agreements to mitigate its exposure to changes in interest at the Adjusted Eurodollar Rate. At December 31, 2019, these agreements totaled \$370.6 million notional amount of the remaining \$380.0 million aggregate principal amount of borrowings under the Term Loan. These interest rate swap agreements expire at various dates through March 31, 2022. Borrowings under the Term Loan bear interest at a rate equal to the Adjusted Eurodollar Rate plus an applicable margin of 2.75%. Based on the terms of the Credit Agreement, the Adjusted Eurodollar Rate cannot be less than 1.00%, resulting in a minimum of a 3.75% all-in rate on the Term Loan for the non-swapped portion of the remaining principal amount. The weighted average rate of these swap agreements is 2.00%, resulting in an all-in rate of approximately 4.75% for \$370.6 million of the Term Loan. In February 2020, APLP Holdings entered into additional interest rate swap agreements. For the period beginning March 31, 2020 through December 31, 2021, we mitigated exposure to changes in interest rates a one-month LIBOR fixed rate of 1.39%. The notional amount of these interest rate swap agreements range between \$9.4 million and \$45.0 million and are sized to the targeted debt balance payments over that period.

The Cadillac project has an interest rate swap agreement that effectively fixes the interest rate at 6.1% through February 15, 2019, 6.3% from February 16, 2019 to February 15, 2023, and 6.4% thereafter. The notional amount of the interest rate swap agreement matches the outstanding principal balance over the remaining life of Cadillac's debt. This swap agreement, which qualifies for and is designated as a cash flow hedge, is effective through June 2025 and the effective portion of the changes in the fair market value is recorded in accumulated other comprehensive (loss) income.

Foreign currency forward contracts

We use foreign currency forward contracts to manage our exposure to changes in foreign exchange rates as we generate cash flow in U.S. dollars and Canadian dollars. We currently have Canadian dollar payment obligations for preferred dividends, interest on our Canadian dollar-denominated convertible debentures and our MTNs due June 23, 2036. Principal and interest payments for our Term Loan are made in U.S. dollars. We have a hedging strategy for the purpose of mitigating the currency risk impact on the future interest and principal payments, preferred dividends and other working capital requirements. Foreign currency forward contracts are not designated as hedges, and changes in their market value are recorded in foreign exchange on the consolidated statements of operations. As of December 31, 2019, we have no foreign currency forward contracts.

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Volume of forecasted transactions

We have entered into derivative instruments in order to economically hedge the following notional volumes of forecasted transactions as summarized below, by type, excluding those derivatives that qualified for the NPNS exemption at December 31, 2019 and December 31, 2018:

	Units	December 31, 2019	December 31, 2018
Natural gas swaps	Natural Gas (MMbtu)	16.3	16.3
Gas purchase agreements	Natural Gas (Gigajoules)	6.4	9.0
Interest rate swaps	Interest (US\$)	468.4	616.6

Fair value of derivative instruments

We have elected to disclose derivative instrument assets and liabilities on a trade-by-trade basis and do not offset amounts at the counterparty master agreement level. The following table summarizes the fair value of our derivative assets and liabilities:

	December 31, 2019	
	Derivative Assets	Derivative Liabilities
Derivative instruments designated as cash flow hedges:		
Interest rate swaps current	\$ —	\$ 0.4
Interest rate swaps long-term	—	1.1
Total derivative instruments designated as cash flow hedges	—	1.5
Derivative instruments not designated as cash flow hedges:		
Interest rate swaps current		1.9
Interest rate swaps long-term	—	1.1
Natural gas swaps current	—	1.9
Natural gas swaps long-term	—	4.2
Gas purchase agreements current	0.7	4.6
Gas purchase agreements long-term	—	9.5
Convertible debenture conversion option	—	3.2
Total derivative instruments not designated as cash flow hedges	0.7	26.4
Total derivative instruments	\$ 0.7	\$ 27.9

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	December 31, 2018	
	Derivative Assets	Derivative Liabilities
Derivative instruments designated as cash flow hedges:		
Interest rate swaps current	\$ —	\$ 0.4
Interest rate swaps long-term	—	1.0
Total derivative instruments designated as cash flow hedges	—	1.4
Derivative instruments not designated as cash flow hedges:		
Interest rate swaps current	4.2	—
Interest rate swaps long-term	0.3	—
Natural gas swaps current	—	0.1
Natural gas swaps long-term	—	1.4
Gas purchase agreements current	—	2.8
Gas purchase agreements long-term	—	13.0
Convertible debenture conversion option	—	1.2
Total derivative instruments not designated as cash flow hedges	4.5	18.5
Total derivative instruments	\$ 4.5	\$ 19.9

Accumulated other comprehensive income

The following table summarizes the changes in the accumulated other comprehensive income (“OCI”) balance attributable to derivative financial instruments designated as a hedge, net of tax:

	Interest Rate Swaps	
Year Ended December 31, 2019		
Accumulated OCI balance at January 1, 2019	\$	1.6
Change in fair value of cash flow hedges		(0.3)
Realized from OCI during the period		0.3
Accumulated OCI balance at December 31, 2019	\$	1.6
Settlements expected to be recognized from OCI in expense in the next 12 months, net of \$0.1 million of tax	\$	0.3
Year Ended December 31, 2018		
Accumulated OCI balance at January 1, 2018	\$	1.1
Change in fair value of cash flow hedges		0.4
Realized from OCI during the period		0.1
Accumulated OCI balance at December 31, 2018	\$	1.6

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Impact of derivative instruments on the consolidated statements of operations

The following table summarizes realized loss (gain) for derivative instruments not designated as cash flow hedges:

	Classification of loss (gain) recognized in income	Year Ended December 31,		
		2019	2018	2017
Gas purchase agreements	Fuel	\$ 8.2	\$ 4.1	\$ 7.5
Natural gas swaps	Fuel	0.9	0.3	0.4
Interest rate swaps	Interest, net	(3.2)	(3.3)	0.9

The following table summarizes the unrealized (loss) gain resulting from changes in the fair value of derivative financial instruments that are not designated as cash flow hedges:

	Classification of (loss) gain recognized in income	Year ended December 31,		
		2019	2018	2017
Natural gas swaps	Change in fair value of derivatives	\$ (4.6)	\$ (0.5)	\$ (1.8)
Gas purchase agreements	Change in fair value of derivatives	3.2	3.7	(5.0)
Interest rate swaps	Change in fair value of derivatives	(7.5)	(1.0)	8.9
		(8.9)	2.2	2.1
Convertible debenture conversion option	Other expense (income), net	1.8	(1.2)	—
Foreign currency forwards	Foreign exchange loss	\$ —	\$ 0.1	\$ —

16. Income tax expense

The following table summarizes the current and deferred portions of the net income tax expense (benefit) by jurisdiction:

	Year Ended December 31,		
	2019	2018	2017
Current income tax expense	\$ 4.9	\$ 3.8	\$ 4.1
Deferred income tax expense (benefit)	4.9	(3.6)	(62.2)
Total income tax expense (benefit), net	\$ 9.8	\$ 0.2	\$ (58.1)

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The following is a reconciliation of the income taxes calculated at the Canadian enacted statutory rate of 27% for the years ended December 31, 2019, 2018 and 2017, respectively, to the provision for income taxes in the consolidated statements of operations:

	Year Ended December 31,		
	2019	2018	2017
Computed income tax (benefit) expense at Canadian statutory rate	(9.2)	10.1	(39.3)
Increases (decreases) resulting from:			
Operating in countries with different income tax rates	0.1	0.1	(20.1)
	(9.1)	10.2	(59.4)
Change in valuation allowance	5.7	(6.7)	(34.6)
	(3.4)	3.5	(94.0)
Dividend withholding tax and other cash taxes	1.3	0.5	0.2
Foreign exchange	1.7	—	(2.4)
Changes in tax rates	2.2	(3.3)	(1.5)
Remeasurement of deferred tax assets and liabilities	—	—	28.5
Capital gain (loss) on intercompany notes	0.1	(1.1)	(0.1)
Impairments	7.7	—	9.9
Other	0.2	0.6	1.3
	13.2	(3.3)	35.9
Income tax expense (benefit)	<u>\$ 9.8</u>	<u>\$ 0.2</u>	<u>\$ (58.1)</u>

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The tax effect of temporary differences that give rise to significant portions of the deferred tax assets and deferred tax liabilities at December 31, 2019 and 2018 are presented below:

	2019	2018
Deferred tax assets:		
Loss carryforwards	\$ 135.9	\$ 163.3
Capital loss carryforwards	35.8	34.4
Interest expense limitation carryforwards	9.7	10.9
Finance and share issuance costs	0.1	0.5
Tax Credits	1.4	1.4
Stock-based compensation	2.4	2.9
Derivative contracts	5.7	3.2
Other long-term notes	—	1.5
Other	0.9	—
Total deferred tax assets	191.9	218.1
Less: Valuation allowance	(145.4)	(139.7)
	46.5	78.4
Deferred tax liabilities:		
Intangible assets	(21.9)	(30.0)
Property, plant and equipment	(31.2)	(41.9)
Basis difference in joint ventures	(5.4)	(15.5)
Other long-term investments	(1.3)	—
Total deferred tax liabilities	(59.8)	(87.4)
Net deferred tax liability	(13.3)	(9.0)
Net deferred tax (liability) asset by jurisdiction		
U.S. Federal and State	\$ (23.7)	\$ (16.0)
Canada	10.4	7.0
Net deferred tax liability	(13.3)	(9.0)

Income tax expense for the year ended December 31, 2019 was \$9.8 million. Expected income tax benefit for the same period, based on the Canadian enacted statutory rate of 27%, was \$9.2 million. The primary items impacting the tax rate for the year ended December 31, 2019 were \$7.7 million related to impairments and a net increase to our valuation allowances of \$5.7 million, consisting of \$7.9 million increases in Canada and \$2.2 million decreases in the United States. In addition, the rate was further impacted by \$2.2 million related to changes in tax rates, \$1.7 million relating to foreign exchange, \$1.3 million relating to withholding and state taxes and \$0.4 million of other permanent differences.

Income tax expense for the year ended December 31, 2018 was \$0.2 million. Expected income tax expense for the same period, based on the Canadian enacted statutory rate of 27%, was \$10.1 million. The primary items impacting the tax rate for the twelve months ended December 31, 2018 were \$0.5 million relating to withholding and state taxes and \$0.7 million of other permanent differences. These items were offset by a net decrease to our valuation allowance of \$6.7 million, consisting of \$0.1 million of decreases in Canada due to utilization of net operating losses and \$6.6 million decreases in the United States. Based on initiatives recently completed, we determined that sufficient deferred tax liabilities were likely to reverse in a timely manner against certain deferred tax assets, resulting in a reduction of the valuation allowance in the United States. In addition, the rate was further impacted by \$3.3 million relating to changes in tax rates and \$1.1 million related to capital loss on intercompany notes.

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During the preparation of our 2019 consolidated financial statements, we identified an immaterial error in our previously issued financial statements relating to the presentation of deferred taxes in accordance with ASC 740 - Income Taxes. Under this guidance, entities are prohibited from offsetting deferred tax liabilities from one jurisdiction against deferred tax assets of another jurisdiction. At December 31, 2018, we recorded deferred tax assets in Canada of \$7.0 million and deferred tax liabilities of \$16.0 million in the U.S. Prior to the correction, we presented a net deferred tax liability of \$9.0 million. The prior period balance sheet has been revised to correct this error. This reclassification did not impact the consolidated statement of operations or consolidated statement of cash flows.

Valuation allowances are reserves that have been recorded to offset some or all of its deferred tax assets. The amount of the allowances recorded have been based on that portion of the tax assets for which evidence suggests it is more likely than not that a tax benefit will not be realized. As of December 31, 2019, we have recorded a valuation allowance of \$145.4 million. This amount is comprised primarily of provisions against available Canadian and U.S. net operating loss carryforwards. In assessing the recoverability of our deferred tax assets, we consider whether it is more likely than not that some portion or all of the deferred tax asset will be realized. The ultimate realization of the deferred tax assets is dependent upon projected future taxable income in the United States and in Canada and available tax planning strategies.

As of December 31, 2019, we had the following net operating loss carryforwards that are scheduled to expire in the following years:

	U.S.	Canada	Total
2029	\$ -	\$ 27.3	\$ 27.3
2030	41.1	-	41.1
2031	25.8	-	25.8
2032	13.4	5.8	19.2
2033	20.6	23.5	44.1
2034	122.3	9.1	131.4
2035	154.1	-	154.1
2036	17.0	20.3	37.3
2037	16.7	8.9	25.6
2038	-	10.1	10.1
2039	-	6.9	6.9
	<u>\$ 411.0</u>	<u>\$ 111.9</u>	<u>\$ 522.9</u>

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17. Equity compensation plans

Long-term incentive plan ("LTIP")

The following table summarizes the changes in outstanding LTIP notional shares during the years ended December 31, 2019, 2018 and 2017:

	Grant Date Weighted-Average Notional Shares Fair Value per Notional Share
Outstanding at December 31, 2016	2,101,118 \$ 2.08
Granted	1,817,463 2.38
Vested and redeemed	(1,009,780) 2.22
Forfeitures	(24,227) 2.32
Outstanding at December 31, 2017	2,884,574 2.22
Granted	2,483,237 2.02
Vested and redeemed	(1,388,671) 2.22
Forfeitures	(26,939) 2.09
Outstanding at December 31, 2018	3,952,201 2.09
Granted	1,724,081 2.72
Vested and redeemed	(2,071,335) 2.10
Forfeitures	(26,855) 2.17
Outstanding at December 31, 2019	3,578,092 \$ 2.38

On March 29, 2019, the compensation committee of our board of directors determined that all notional shares granted under the LTIP held by non-officer employees will be settled in cash following vesting, rather than two-thirds in common shares and one-third in cash, with the cash portion being utilized to satisfy the tax withholding and remittance obligations related to the common share settlement. As a result of the modification, all future vesting of notional shares for this employee group will be settled in cash. The portion of LTIP grants settled in common shares was accounted for as equity awards. On the modification date, the equity awards were reclassified as liability awards and a liability equal to the modification-date fair value was recognized. The impact of the modification was not material on the date of the change in accounting.

The total grant date fair value of all outstanding notional shares under the LTIP was \$8.5 million, \$8.3 million and \$6.4 million for the years ended December 31, 2019, 2018 and 2017. The weighted average remaining vesting term for outstanding notional shares was 1.7 years at December 31, 2019. Approximately \$3.6 million of total unrecognized compensation expense is expected to be recognized over the term of the outstanding LTIP shares. Compensation expense related to LTIP was \$4.9 million, \$3.6 million and \$3.4 million for the years ended December 31, 2019, 2018 and 2017, respectively. Cash payments made for vested notional shares were \$2.1 million, \$0.9 million and \$0.7 million for the years ended December 31, 2019, 2018 and 2017, respectively.

Transition Equity Participation Agreement

We also have 269,952 transition notional shares outstanding at December 31, 2019 under the Transition Equity Participation Agreement with James J. Moore, Jr. These notional shares will vest on or any time after January 22, 2017 if the weighted average Canadian dollar closing price of our common shares on the TSX for a period of at least three consecutive calendar months has exceeded the market price per common share determined as of January 22, 2015 (Cdn\$3.18) by at least 50% (Cdn\$4.77). These notional shares will also vest in the event that Mr. Moore is terminated

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without cause, resigns for good reason, or dies.

18. Employee benefit plans

Defined benefit pension plan

We sponsor and operate a defined benefit pension plan that is available to certain legacy employees of Atlantic Power Limited. The Atlantic Power Services Canada LP Pension Plan (the “Plan”) is maintained solely for certain eligible legacy Partnership participants. The Plan is a defined benefit pension plan that allows for employee contributions. We expect to contribute \$0.4 million to the pension plan in 2020.

The net annual periodic pension cost related to the pension plan for the years ended December 31, 2019, 2018 and 2017 includes the following components:

	2019	2018	2017
Service cost benefits earned	\$ 0.3	\$ 0.3	\$ 0.5
Interest cost on benefit obligation	0.5	0.5	0.6
Expected return on plan assets	(0.7)	(0.7)	(0.9)
Settlements	0.3	—	—
Net period benefit cost	<u>\$ 0.4</u>	<u>\$ 0.1</u>	<u>\$ 0.2</u>

A comparison of the pension benefit obligation and related plan assets for the pension plan at December 31 is as follows:

	2019	2018
Projected benefit obligation at January 1	\$ (13.2)	\$ (15.8)
Service cost	(0.3)	(0.3)
Interest cost	(0.5)	(0.5)
Actuarial (gain) loss	(2.0)	1.4
Employee contributions	(0.1)	(0.1)
Benefits paid	0.2	0.8
Settlements	2.4	—
Foreign currency adjustment	(0.6)	1.3
Projected benefit obligation at December 31	<u>(14.1)</u>	<u>(13.2)</u>
Fair value of plan assets at January 1	\$ 12.0	\$ 13.9
Actual return on plan assets	2.0	(0.4)
Employer contributions	0.8	0.4
Employee contributions	0.1	0.1
Benefits paid	(0.2)	(0.8)
Settlements	(2.4)	—
Foreign currency adjustment	0.6	(1.2)
Fair value of plan assets at December 31	<u>12.9</u>	<u>12.0</u>
Funded status at December 31-excess of obligation over assets	<u>\$ (1.2)</u>	<u>\$ (1.2)</u>

Amounts recognized in the balance sheet at December 31 were as follows:

	2019	2018
Non-current liabilities	\$ 1.2	\$ 1.2

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Amounts recognized in accumulated OCL that have not yet been recognized as components of net periodic benefit cost were as follows, net of tax:

	<u>2019</u>	<u>2018</u>
Unrecognized (gain) loss	\$ (1.7)	\$ 1.4

We estimate that there will be no amortization of net loss for the pension plan from accumulated OCI to net periodic cost over the next fiscal year.

The following table presents the balances of significant components of the pension plan:

	<u>2019</u>	<u>2018</u>
Projected benefit obligation	\$ 14.1	\$ 13.2
Accumulated benefit obligation	12.9	12.2
Fair value of plan assets	12.9	12.0

The market-related value of the pension plan's assets is the fair value of the assets. Plan assets are invested in a common collective trust which totaled \$12.9 million and \$12.0 million for the years ended December 31, 2019 and 2018, respectively.

We determine the level in the fair value hierarchy within which the fair value measurement in its entirety falls, based on the lowest level input that is significant to the fair value measurement in its entirety. The fair value of the common/collective trust is valued at a fair value which is equal to the sum of the market value of the fund's investments, and is categorized as Level 2. There are no investments categorized as Level 1 or 3.

The following table presents the significant assumptions used to calculate our benefit obligations:

	<u>2019</u>	<u>2018</u>
Weighted-Average Assumptions		
Discount rate	3.25 %	4.0 %
Rate of compensation increase	2.0 %	2.0 %

The following table presents the significant assumptions used to calculate our benefit expense:

	<u>2019</u>	<u>2018</u>	<u>2017</u>
Weighted-Average Assumptions			
Discount rate	4.0 %	3.5 %	4.0 %
Rate of return on plan assets	5.8 %	5.8 %	5.8 %
Rate of compensation increase	2.0 %	2.0 %	2.0 %

We use December 31 as the measurement date for the Plan, and we set the discount rate assumptions on an annual basis on the measurement date. This rate is determined by management based on information agreed with our actuary. The discount rate assumptions reflect the current rate at which the associated liabilities could be effectively settled at the end of the year. The discount rate assumptions used to determine future pension obligations as of the year ended December 31, 2019, 2018 and 2017, were based on the CIA / Fiera curve, which was designed by the Canadian Institute of Actuaries and Fiera Capital Investment Management Inc. to provide a means for sponsors of Canadian plans to value the liabilities of their pension and postretirement benefit plans. The CIA / Fiera curve is a hypothetical yield curve represented by extrapolating the corporate AA-rated yield curve beyond 10 years using yields on provincial AA bonds with a spread added to the provincial AA yields to approximate the difference between corporate AA and

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provincial AA credit risk. The CIA / Fiera curve utilizes this approach because there are very few corporate bonds rated AA or above with maturities of 10 years or more in Canada.

We employ a balanced total return investment approach, whereby a mix of equities and fixed income investments are used to maximize the long-term return of plan assets for a prudent level of risk. Risk tolerance is established through careful consideration of plan liabilities, and the plan's funded status. Plan assets in the common collective trust are currently invested in a diversified blend of equity and fixed-income investments. Furthermore, equity investments are diversified across Canadian, U.S. and other international equities, as well as among growth, value and small and large capitalization stocks.

The pension plan assets weighted average allocations in the common collective trust were as follows:

	<u>2019</u>	<u>2018</u>
Canadian equity	30 %	29 %
U.S. equity	14 %	14 %
International equity	14 %	13 %
Canadian fixed income	39 %	41 %
Real estate equities	3 %	3 %
	<u>100 %</u>	<u>100 %</u>

Our expected future benefit payments for each of the next five years and in the aggregate for the five years thereafter, are as follows in Cdn\$:

Years ending December 31,	
2020	Cdn\$ 0.4
2021	0.5
2022	0.6
2023	0.7
2024	0.8
2025-2029	4.7

Defined Contribution Plans

We maintain a 401(k) retirement savings plan, registered retirement savings plan, and another defined contribution plan for the benefit of our eligible employees. Substantially all of our employees who meet certain service and age requirements are eligible to participate in these plans. Our plan documents provide that any matching contributions by us are discretionary. We have made or accrued matching contributions to these plans of \$1.3 million, \$1.4 million, and \$1.2 million for the years ended December 31, 2019, 2018 and 2017, respectively.

19. Common shares

Our common shares have no par value and unlimited authorization. We had 108,675,294 and 108,341,738 common shares issued and outstanding at December 31, 2019 and December 31, 2018, respectively.

Stock Repurchase Program

During the year ended December 31, 2019, we repurchased and canceled 1,064,081 common shares at a total cost of approximately \$2.5 million under an NCIB that expired on December 30, 2019. In the year ended December 31, 2018, we repurchased and canceled 7,772,971 common shares at a total cost of approximately \$16.6 million.

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On December 31, 2019, we commenced a new NCIB for our Series E Debentures, our common shares and for each series of the preferred shares of APPEL, our wholly-owned subsidiary. The NCIBs expire on December 30, 2020 or such earlier date as the Company and/or APPEL complete their respective purchases pursuant to the NCIB. Under the NCIBs, we may purchase up to a total of 10,578,799 common shares based on 10% of our public float as of December 17, 2019 and we are limited to daily purchases of 9,243 common shares per day with certain exceptions including block purchases and purchases on other approved exchanges. All purchases made under the NCIBs will be made through the facilities of the TSX or other Canadian designated exchanges and published marketplaces and in accordance with the rules of the TSX at market prices prevailing at the time of purchase. Common share purchases under the NCIBs may also be made on the New York Stock Exchange in compliance with Rule 10b-18 under the Exchange Act, as amended, or other designated exchanges and published marketplaces in the U.S. in accordance with applicable regulatory requirements. The ability to make certain purchases through the facilities of the NYSE is subject to regulatory approval.

The Board authorization permits the Company to repurchase common and preferred shares and convertible debentures. Therefore, in addition to the current NCIBs, from time to time we may repurchase our securities, including our common shares, our convertible debentures and our APPEL preferred shares through open market purchases, including pursuant to one or more “Rule 10b5-1 plans” pursuant to such provision under the Exchange Act, as amended, NCIBs, issuer self tender or substantial issuer bids, or in privately negotiated transactions. There can be no assurances as to the amount, timing or prices of repurchases, which may vary based on market conditions, other market opportunities and other factors. Any share repurchases outside of previously authorized NCIBs would be effected after taking into account our then current cash position and then anticipated cash obligations or business opportunities.

Subsequent to December 31, 2019 and through February 26, 2020, we have repurchased and cancelled 1,742,919 common shares at a cost of \$4.1 million under the new NCIB.

Shelf Registration

On February 9, 2016, we announced the elimination of our common stock dividend, effective immediately. In conjunction with the elimination of the common stock dividend, our dividend reinvestment plan (the “Plan”) also was eliminated. We filed a post-effective amendment to our registration statement on Form S-3 (Registration No. 333-194204) to deregister all of the Company’s common shares that remain unissued under the Plan.

20. Preferred shares issued by a subsidiary company

In 2007, a subsidiary acquired in our acquisition of the Partnership issued 5.0 million 4.85% Cumulative Redeemable Preferred Shares, Series 1 (the “Series 1 Shares”) priced at Cdn\$25.00 per share. Cumulative dividends are payable on a quarterly basis. The Series 1 Shares are redeemable by the subsidiary company at Cdn\$25.00 per share, plus an amount equal to all accrued and unpaid dividends thereon. At December 31, 2019, there were 3,847,500 Series 1 Shares outstanding.

In 2009, a subsidiary company acquired in our acquisition of the Partnership issued 4.0 million 7.0% Cumulative Rate Reset Preferred Shares, Series 2 (the “Series 2 Shares”) priced at Cdn\$25.00 per share. The Series 2 Shares pays a fixed dividend when declared. The dividend on the Series 2 Shares is cumulative. Beginning on December 31, 2014 and each fifth-year anniversary thereafter, (i) the rate on the Series 2 shares is reset at a rate equal to the sum of the then five-year Government of Canada bond yield and 4.18%, and (ii) holders of Series 2 Shares have the right, subject to certain limitations, to convert their shares into Cumulative Floating Rate Preferred Shares, Series 3 (the “Series 3 Shares”) of the subsidiary. On December 31, 2019, the rate on the Series 2 Shares was reset to 5.67% and holders of the Series 2 Shares converted 23,618 Series 2 Shares into Series 3 Shares.

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The holders of Series 3 Shares are entitled to receive quarterly floating rate dividends, as and when declared by the board of directors of the subsidiary, at a rate equal to the sum of the then 90-day Government of Canada Treasury bill rate and 4.18%. The dividend on the Series 3 Shares is cumulative. The dividend rate for the Series 3 Shares was reset on December 31, 2019 to 5.83%. Beginning on December 31, 2019, and on each fifth-year anniversary thereafter, holders of Series 3 Shares have the right, subject to certain limitations, to convert their shares into Series 2 Shares. On December 31, 2019, the rate on the Series 3 Shares was reset to 5.83% and holders of the Series 3 Shares converted 295,032 Series 3 Shares into Series 2 Shares.

The Series 2 Shares and Series 3 Shares are redeemable by the subsidiary company at Cdn\$25.00 per share, plus an amount equal to all accrued and unpaid dividends thereon. At December 31, 2019, there were 2,504,131 Series 2 Shares and 1,077,391 Series 3 Shares outstanding.

The Series 1 Shares, the Series 2 Shares and the Series 3 Shares are fully and unconditionally guaranteed by us and by the Partnership on a subordinated basis as to: (i) the payment of dividends, as and when declared; (ii) the payment of amounts due on a redemption for cash; and (iii) the payment of amounts due on the liquidation, dissolution or winding up of the subsidiary company. If, and for so long as, the declaration or payment of dividends on the Series 1 Shares, the Series 2 Shares or the Series 3 Shares is in arrears, the Partnership will not make any distributions on its limited partnership units and we will not pay any dividends on our common shares.

The Series 1, 2 and 3 Shares are accounted for as a non-controlling interest on our consolidated balance sheets and consolidated statements of operations. The subsidiary company paid aggregate dividends of \$7.4 million, \$8.3 million and \$8.7 million for the years ended December 31, 2019, 2018 and 2017, respectively. In 2019, we repurchased and cancelled 427,500 of the Series 1 Shares, 100,377 of the Series 2 Shares and 148,311 Series 3 Shares, respectively for a total cost of \$8.0 million. We also repurchased and cancelled preferred shares at a cost of \$8.0 million and \$3.1 million in the years ended December 31, 2018 and 2017, respectively. As a result of the repurchases, losses of \$8.6 million, \$7.9 million and \$3.0 million were attributed to the preferred shares of a subsidiary company in the Consolidated Statements of Operations for the years ended December 31, 2019, 2018 and 2017, respectively.

Subsequent to December 31, 2019 and through February 26, 2020, we repurchased and cancelled 247,894 Series 1 Shares at a cost of \$3.1 million.

21. Basic and diluted (loss) earnings per share

Basic (loss) earnings per share is calculated by dividing net (loss) income attributable to Atlantic Power Corporation by the weighted average common shares outstanding during their respective periods. Shares issued and shares repurchased during the year are weighted for the portion of the year that they were outstanding. Diluted (loss) earnings per share is computed in a manner consistent with that of basic (loss) earnings per share while giving effect to all potentially dilutive common shares that were outstanding during the period. The dilutive effect of our convertible debentures is calculated using the "if-converted method." Under the if-converted method, the debentures are assumed to be converted at the beginning of the period, and the resulting common shares are included in the denominator of the diluted (loss) earnings per share calculation for the entire period being presented. Interest expense, net of any income tax effects, would be added back to the numerator for purposes of the if-converted calculation. The outstanding equity compensation for non-vested LTIP and Transition Equity Participation Agreement notional shares are not considered outstanding for purposes of computing basic (loss) earnings per share. However, these instruments are included in the denominator, when dilutive, for purposes of computing diluted (loss) earnings per share under the treasury stock method.

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The following table sets forth the diluted net (loss) income and potentially dilutive shares utilized in the per share calculation for the years ended December 31, 2019, 2018 and 2017:

Basic	2019	2018	2017
Numerator:			
(Loss) income attributable to Atlantic Power Corporation	\$ (42.6)	\$ 36.8	\$ (98.6)
Denominator:			
Weighted average basic shares outstanding	109.3	112.0	115.1
Basic (loss) earnings per share attributable to Atlantic Power Corporation	<u>\$ (0.39)</u>	<u>\$ 0.33</u>	<u>\$ (0.86)</u>
Diluted			
Numerator:			
Net (loss) income attributable to Atlantic Power Corporation	(42.6)	36.8	(98.6)
Add: convertible debenture interest expense	—	4.7	—
	<u>(42.6)</u>	<u>41.5</u>	<u>(98.6)</u>
Denominator:			
Weighted average basic shares outstanding	109.3	112.0	115.1
Convertible debentures	—	27.8	—
Share-based compensation	—	2.0	—
	<u>109.3</u>	<u>141.8</u>	<u>115.1</u>
Diluted (loss) earnings per share attributable to Atlantic Power Corporation	<u>(0.39)</u>	<u>0.29</u>	<u>(0.86)</u>

The following table summarizes our outstanding instruments that are anti-dilutive and were not included in the computation of our diluted (loss) earnings per share:

	2019	2018	2017
Share-based compensation	1.5	—	1.6
Convertible debentures	27.8	—	8.1
Total	29.3	—	9.7

22. Segment and geographic information

We have four reportable segments: Solid Fuel, Natural Gas, Hydroelectric and Corporate. We revised our reportable business segments in the fourth quarter of 2019 as the result of recent acquisitions, PPA expirations and project decommissioning and in order to align with changes to management's structure, resource allocation and performance assessment in making decisions regarding our operations. Our financial results for the years ended December 31, 2018 and 2017 have been revised to reflect these changes in operating segments. The segment classified as Corporate (formerly Un-Allocated Corporate) includes activities that support the executive and administrative offices, capital structure, costs of being a public registrant, costs to develop future projects and intercompany eliminations. These costs are not allocated to the operating segments when determining segment profit or loss.

We analyze the performance of our operating segments based on Project Adjusted EBITDA which is defined as project (loss) income plus interest, taxes, depreciation and amortization (including non-cash impairment charges) and changes in fair value of derivative instruments. Project Adjusted EBITDA is not a measure recognized under GAAP and does not have a standardized meaning prescribed by GAAP and is therefore unlikely to be comparable to similar measures presented by other companies. We use Project Adjusted EBITDA to provide comparative information about segment performance without considering how projects are capitalized or whether they contain derivative contracts that are required to be recorded at fair value. Our equity investments in unconsolidated affiliates are presented on a proportionally consolidated basis in Project Adjusted EBITDA and in the reconciliation of Project Adjusted EBITDA to project (loss) income.

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A reconciliation of Project Adjusted EBITDA to net (loss) income is included in the tables below:

	<u>Solid Fuel</u>	<u>Natural Gas</u>	<u>Hydroelectric</u>	<u>Corporate</u>	<u>Consolidated</u>
Year Ended December 31, 2019					
Project revenues	\$ 80.0	\$ 131.8	\$ 68.8	\$ 1.0	\$ 281.6
Segment assets	222.7	241.0	388.3	83.6	935.6
Goodwill	—	6.9	14.4	—	21.3
Capital expenditures	6.8	0.1	0.4	—	7.3
Project Adjusted EBITDA	\$ 32.7	\$ 108.2	\$ 55.5	\$ (0.3)	\$ 196.1
Change in fair value of derivative instruments	—	1.4	—	7.5	8.9
Depreciation and amortization	23.9	37.2	19.5	0.1	80.7
Interest, net	2.6	(0.1)	—	—	2.5
Insurance loss	1.0	—	—	—	1.0
Impairment	55.0	—	—	—	55.0
Other project expense	—	1.2	—	—	1.2
Project (loss) income	(49.8)	68.5	36.0	(7.9)	46.8
Administration	—	—	—	23.9	23.9
Interest expense, net	—	—	—	44.0	44.0
Foreign exchange loss	—	—	—	11.9	11.9
Other expense, net	—	—	—	1.0	1.0
Net (loss) income before income taxes	(49.8)	68.5	36.0	(88.7)	(34.0)
Income tax expense	—	—	—	9.8	9.8
Net (loss) income	<u>\$ (49.8)</u>	<u>\$ 68.5</u>	<u>\$ 36.0</u>	<u>\$ (98.5)</u>	<u>\$ (43.8)</u>

	<u>Solid Fuel</u>	<u>Natural Gas</u>	<u>Hydroelectric</u>	<u>Corporate</u>	<u>Consolidated</u>
Year Ended December 31, 2018					
Project revenues	\$ 83.8	\$ 139.2	\$ 58.3	\$ 1.0	\$ 282.3
Segment assets	258.3	280.8	404.5	87.9	1,031.5
Goodwill	—	6.9	14.4	—	21.3
Capital expenditures	1.3	—	0.2	0.3	1.8
Project Adjusted EBITDA	\$ 46.7	\$ 90.4	\$ 47.5	\$ 0.5	\$ 185.1
Change in fair value of derivative instruments	—	(3.2)	—	1.0	(2.2)
Depreciation and amortization	23.7	57.0	18.9	0.1	99.7
Interest, net	3.3	0.1	—	—	3.4
Other project expense (income)	—	3.2	(7.2)	—	(4.0)
Project income (loss)	19.7	33.3	35.8	(0.6)	88.2
Administration	—	—	—	23.9	23.9
Interest expense, net	—	—	—	52.7	52.7
Foreign exchange gain	—	—	—	(22.8)	(22.8)
Other income, net	—	—	—	(3.0)	(3.0)
Net income (loss) before income taxes	19.7	33.3	35.8	(51.4)	37.4
Income tax expense	—	—	—	0.2	0.2
Net income (loss)	<u>\$ 19.7</u>	<u>\$ 33.3</u>	<u>\$ 35.8</u>	<u>\$ (51.6)</u>	<u>\$ 37.2</u>

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	<u>Solid Fuel</u>	<u>Natural Gas</u>	<u>Hydroelectric</u>	<u>Corporate</u>	<u>Consolidated</u>
Year Ended December 31, 2017					
Project revenues	\$ 93.7	\$ 276.8	\$ 59.5	\$ 1.0	\$ 431.0
Segment assets	284.2	369.0	408.8	96.8	1,158.8
Goodwill	—	6.9	14.4	—	21.3
Capital expenditures	4.7	—	0.8	—	5.5
Project Adjusted EBITDA	\$ 54.9	\$ 185.3	\$ 47.2	\$ 1.4	\$ 288.8
Change in fair value of derivative instruments	(8.1)	7.9	—	(1.9)	(2.1)
Depreciation and amortization	30.4	84.5	17.7	0.6	133.2
Interest, net	19.1	0.1	—	—	19.2
Impairment	76.2	96.2	14.7	—	187.1
Other project (income) expense	(0.1)	(1.0)	—	(0.1)	(1.2)
Project (loss) income	(62.6)	\$ (2.4)	\$ 14.8	\$ 2.8	(47.4)
Administration	—	—	—	23.6	23.6
Interest, net	—	—	—	64.2	64.2
Foreign exchange loss	—	—	—	16.3	16.3
Other income, net	—	—	—	(0.4)	(0.4)
Net (loss) income before income taxes	(62.6)	(2.4)	14.8	(100.9)	(151.1)
Income tax benefit	—	—	—	(58.1)	(58.1)
Net (loss) income	<u>\$ (62.6)</u>	<u>\$ (2.4)</u>	<u>\$ 14.8</u>	<u>\$ (42.8)</u>	<u>\$ (93.0)</u>

The table below provides information, by country, about our consolidated operations for each of the years ended December 31, 2019, 2018 and 2017 and Property, Plant and Equipment, PPAs and other Intangible and total assets as of December 31, 2019 and 2018, respectively. Revenue is recorded in the country in which it is earned and assets are recorded in the country in which they are located.

	<u>Revenue</u>		
	<u>2019</u>	<u>2018</u>	<u>2017</u>
United States	\$ 208.4	\$ 203.4	\$ 262.4
Canada	73.2	78.9	168.6
Total	<u>\$ 281.6</u>	<u>\$ 282.3</u>	<u>\$ 431.0</u>

	<u>Property, Plant and Equipment, net of accumulated depreciation</u>		<u>PPAs and other intangible assets, net of accumulated amortization</u>		<u>Total assets</u>	
	<u>2019</u>	<u>2018</u>	<u>2019</u>	<u>2018</u>	<u>2019</u>	<u>2018</u>
United States	\$ 353.9	\$ 396.5	\$ 142.8	\$ 165.9	\$ 762.3	\$ 842.2
Canada	148.2	153.0	1.5	4.2	173.3	189.3
Total	<u>\$ 502.1</u>	<u>\$ 549.5</u>	<u>\$ 144.3</u>	<u>\$ 170.1</u>	<u>\$ 935.6</u>	<u>\$ 1,031.5</u>

Niagara Mohawk Power Corporation, IESO, Equistar Chemicals L. P. and Georgia Power Company provided 19.6%, 12.9%, 12.0% and 11.1%, respectively, of total consolidated revenues for the year ended December 31, 2019. Niagara Mohawk, Atlantic City Electric, BC Hydro, Georgia Power Company and IESO provided 15.1%, 12.6%, 12.5%, 10.9% and 10.8%, respectively, of total consolidated revenues for the year ended December 31, 2018. IESO, Niagara Mohawk, San Diego Gas & Electric and BC Hydro provided 20.3%, 10.7%, 10.6% and 10.3%, respectively, of total consolidated revenues for the year ended December 31, 2017. IESO purchased electricity from the Calstock,

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Nipigon and Tunis projects and previously purchased electricity from our North Bay and Kapuskasing projects in the Natural Gas segment. Niagara Mohawk purchases electricity from the Curtis Palmer project in the Hydroelectric segment and BC Hydro purchases electricity from the Mamquam, Moresby Lake, and Williams Lake projects in the Hydroelectric and Solid Fuel segments. Georgia Power Company purchases electricity from the Piedmont project in the Solid Fuel segment. Atlantic City Electric purchases electricity from the Chambers project in the Solid Fuel segment. San Diego Gas & Electric previously purchased electricity from our Naval Station, Naval Training Center and North Island projects in the Natural Gas segment.

23. Commitments and contingencies

Commitments

Management Service Commitments

Our Manchief project is operated by a third party under a contract that expires in April 2022. As of December 31, 2019, our commitments under this agreement are estimated as follows:

2020	\$ 0.4
2021	0.4
2022	0.2
2023	—
2024	—
Thereafter	—
	<u>\$ 1.0</u>

Fuel Supply and Transportation Commitments

We have entered into long-term contractual arrangements to procure fuel and transportation services for our projects. We have also entered into long-term arrangements for firm gas sales. The commitments listed below include only contracts for fuel contracts that are not reimbursed or passed through under the terms of the relevant PPAs and are presented net of estimated future gas sales. As of December 31, 2019, our commitments under such outstanding agreements are estimated as follows:

2020	\$ 5.0
2021	5.0
2022	5.2
2023	—
2024	—
Thereafter	—
	<u>\$ 15.2</u>

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Guarantees

We and our subsidiaries enter into various contracts that include indemnification and guarantee provisions as a routine part of our business activities. Examples of these contracts include asset purchases and sale agreements, joint venture agreements, operation and maintenance agreements, and other types of contractual agreements with vendors and other third parties, as well as affiliates. These contracts generally indemnify the counterparty for tax, environmental liability, litigation and other matters, as well as breaches of representations, warranties and covenants set forth in these agreements.

Contingencies

Fire at Cadillac project

On September 22, 2019, the Cadillac project experienced a malfunction in its steam turbine that began a cascade of events, sparking a fire. The fire was contained by the local fire department and did not result in any injuries or known environmental violations.

Physical Damage

The biomass plant suffered significant damage to the turbine, generator and other components in that area of the plant as a result of the fire. The boiler, cooling tower, fuel pile and fuel handling equipment were not affected. Cadillac is expected to be offline for an extended period. Our insurance provides coverage for the repair or replacement of the assets that experienced loss or damage. The property damage deductible under the policies insuring the Cadillac assets is \$1.0 million. Our losses have exceeded the deductible under these insurance policies.

Business Interruption

Our insurance policies also provide coverage for interruption to Cadillac's business, including lost profits. The policies also reimburse for other expenses and costs it has incurred relating to the damages and loss it has suffered. The policies provide for coverage during the reconstruction period. At this time, we are unable to determine the Cadillac plant's expected return to service date. The business interruption deductible under the policies insuring the Cadillac assets is 45 days of lost production, which had an approximate \$1.4 million impact to cash flows from operations in 2019.

Impact

The fire resulted in a triggering event to test the Cadillac's asset group for long-lived asset impairment. Based on our expectation of insurance recoveries and a full repair of the plant, we did not record an impairment at Cadillac because its estimated undiscounted future cash flows exceed the carrying value of the asset group at the date of the incident.

Because the plant experienced significant damage and it is probable that insurance proceeds will be received in order to repair the facility, we applied accounting for gains and losses on involuntary conversions. Based on loss estimates and expenses incurred through third quarter of 2019, we recorded a \$25 million write-down of Cadillac's property, plant and equipment and a \$0.3 million write-down of capital spares inventory in the three months ended September 30, 2019. This was our best estimate at the time the loss was incurred, but may be subject to future adjustments based on actual experience of replacement cost. We also recorded a corresponding insurance receivable (\$24.2 million), a component of other current assets, less the \$1.0 million property damage deductible, which was recorded as a charge to other project income, because we believe that it is probable we will receive insurance recoveries up to our estimated plant write-down. As the plant is repaired, any costs incurred will be capitalized to property, plant

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and equipment. As of December 31, 2019, we have recorded \$5.1 million in capital additions related to repairs at Cadillac. Insurance proceeds in excess of the net book value of the property, plant and equipment write-down, if any, would be recorded as a gain in the period those proceeds are received.

During the three months ended December 31, 2019 and for the full year 2019, we received \$11.3 million of insurance proceeds with respect to the fire at Cadillac, which were applied against the September 30, 2019 insurance receivable of \$24.2 million. During the three months ended December 31, 2019, we recorded a \$0.6 million write-down of fuel inventory, with a corresponding increase to the insurance receivable. As of December 31, 2019, the insurance receivable balance totals \$13.5 million. Additionally, we estimate anticipated insurance recoveries related to business interruption losses of \$2.0 million for the three months ended December 31, 2019. Anticipated reimbursements for lost profits, or business interruption losses, are accounted for as a gain contingency because lost profits are not considered an incurred loss. Anticipated reimbursements for business interruption losses were not recorded as of December 31, 2019 as all contingencies related to these claims had not been resolved as of period end. We expect all contingencies related to business interruption losses to be resolved once final payment is received from the insurers, which is when we will recognize the reimbursements in earnings. The Cadillac biomass plant is a component of our Solid Fuel segment.

General

From time to time, Atlantic Power, its subsidiaries and the projects are parties to disputes and litigation that arise in the normal course of business. We assess our exposure to these matters and record estimated loss contingencies when a loss is likely and can be reasonably estimated. There are no matters pending which are expected to have a material adverse impact on our financial position or results of operations or have been reserved for as of December 31, 2019.

24. Leases

Real estate leases and equipment leases

We lease our office properties and equipment under operating leases expiring on various dates through 2024. Certain operating lease agreements include provisions for scheduled rent increases over their lease terms. We recognize the effects of these scheduled rent increases on a straight-line basis over the lease term. One of our leased office properties is sub-leased to third parties. The sub-lease is an operating lease and the rental income received is recorded net of rental expense in the Consolidated Statements of Operations.

On January 1, 2019, we implemented FASB ASU No. 2016-02, Leases (Topic 842). To calculate lease liabilities on the implementation date, we utilized an incremental borrowing rate of 3.75%, which is our minimum all-in rate on the Term Loan for the non-swapped portion of the remaining principal amount.

The following table presents the components of lease expense.

	Year Ended December 31, 2019
Lease cost: ⁽¹⁾	
Operating lease cost	\$ 1.9
Short-term lease cost	0.1
Sublease income	(1.2)
Total lease cost	\$ 0.8

⁽¹⁾ Finance lease costs are immaterial to the Company.

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The following table presents operating lease maturities and a reconciliation of the undiscounted cash flows to operating lease liabilities.

	Lease Payments	Income from subleasing	Net lease payments
2020	\$ 2.3	\$ (1.1)	\$ 1.2
2021	2.0	(1.1)	0.9
2022	1.7	(1.1)	0.6
2023	1.2	(0.7)	0.5
2024	0.1	—	0.1
Thereafter	—	—	—
Total operating lease payments	\$ 7.3	\$ (4.0)	\$ 3.3
Less: present value discount	(0.5)		
Total operating lease liabilities	<u>\$ 6.8</u>		

	Lease Payments
2020	\$ 0.1
2021	0.1
2022	0.1
Thereafter	—
Total finance lease payments	\$ 0.3
Less: amount representing interest	(0.1)
Total finance lease liabilities	<u>\$ 0.2</u>

Other Information:

Cash paid for amounts included in the measurement of lease liabilities ⁽¹⁾:

Operating cash flows from operating leases \$ 0.8

⁽¹⁾ Cash flows from finance leases are immaterial to the Company

Lease assets obtained in exchange for new lease liabilities (non-cash):

Operating \$ 1.6

Finance 0.2

Weighted average remaining lease term (in years):

Operating leases 3.5

Finance leases 2.4

Weighted average discount rate - operating leases 3.92 %

Weighted average discount rate - finance leases 4.06 %

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The following table presents future minimum lease payments under operating leases, which at inception had a non-cancelable term of more than one year, as previously reported.

	Lease Payments	Income from subleasing	Net lease payments
2019	\$ 1.7	\$ (1.1)	\$ 0.6
2020	1.4	(1.1)	0.3
2021	1.4	(1.1)	0.3
2022	1.4	(1.1)	0.3
2023	0.8	(0.7)	0.1
Thereafter	—	—	—
	<u>\$ 6.7</u>	<u>(5.1)</u>	<u>\$ 1.6</u>

We have no lease transactions with related parties. We did not utilize practical expedients for separating lease components for all operating leases that we lease.

PPA Leases

We have entered into PPAs to sell power at predetermined rates. PPAs were assessed as to whether they contain leases, which convey to the counterparty the right to control the use of the project's property, plant and equipment in return for future payments. Such arrangements are classified as either operating or finance leases. We recognize lease income consistent with the recognition of energy sales and capacity revenue. When energy is delivered and capacity is provided, we recognize lease income as a component of energy sales and capacity revenue. Finance income related to leases or arrangements accounted for as finance leases is recognized in a manner that produces a constant rate of return on the net investment in the lease. The net investment is comprised of net minimum lease payments and unearned finance income. Unearned finance income is the difference between the total minimum lease payments and the carrying value of the leased property. Unearned finance income is deferred and recognized in net (loss) income over the lease term. We elected the practical expedient that permits us to retain our existing lease assessment and classification.

As of December 31, 2019, we have twelve PPAs accounted for as operating leases and one PPA accounted for as a direct financing lease among our twenty-one projects in operation. No extension terms exist for our PPAs accounted for as leases and the remaining lease term varies from eight months to twenty-four years. At December 31, 2019, a net investment in lease of \$0.9 million is recorded in current assets on the consolidated balance sheets for our direct financing lease. The following table provides lease income recorded as energy and capacity sales by segment from PPAs accounted for as operating leases:

	Rental Income from operating leases	
	Year Ended	
	December 31,	
	2019	2018
Solid Fuel	\$ 79.1	\$ 83.8
Natural Gas	24.4	20.8
Hydroelectric	68.8	58.3
	<u>\$ 172.3</u>	<u>\$ 162.9</u>

For certain of our PPAs accounted for as leases, the lessee has the option to purchase the plant. In May 2019, we entered into an agreement to sell Manchief to PSCo following the expiration of the PPA in April 2022 for \$45.2 million subject to working capital and other customary adjustments. BC Hydro has an option to purchase Mamquam that is exercisable in November 2021 and every five-year anniversary thereafter.

ATLANTIC POWER CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)
(in millions of U.S. dollars, except per-share amounts)

25. Unaudited selected quarterly financial data

Unaudited selected quarterly financial data are as follows:

	Quarter Ended				
	2019				
	December 31,	September 30,	June 30,	March 31,	Total
Project revenue	\$ 66.2	\$ 71.1	\$ 71.3	\$ 73.0	\$ 281.6
Project (loss) income	(33.4)	27.9	21.7	30.6	46.8
Net (loss) income	(63.4)	14.3	2.9	2.4	(43.8)
Net (loss) income attributable to Atlantic Power Corporation	(65.3)	12.6	1.2	8.9	(42.6)
(Loss) income per share attributable to Atlantic Power Corporation	\$ (0.60)	\$ 0.12	\$ 0.01	\$ 0.08	\$ (0.39)
Weighted average number of common shares outstanding-basic	109.3	109.4	109.7	108.9	109.3
Diluted (loss) income per share attributable to Atlantic Power Corporation	\$ (0.60)	\$ 0.10	\$ 0.01	\$ 0.07	\$ (0.39)
Weighted average number of common shares outstanding-diluted	109.3	137.8	110.2	138.6	109.3

	Quarter Ended				
	2018				
	December 31,	September 30,	June 30,	March 31,	Total
Project revenue	\$ 70.7	\$ 65.4	\$ 66.2	\$ 80.0	\$ 282.3
Project income	20.1	26.2	13.6	28.3	88.2
Net income (loss)	26.7	(4.7)	1.0	14.2	37.2
Net income (loss) attributable to Atlantic Power Corporation	24.7	(3.2)	(0.6)	15.9	36.8
Income (loss) per share attributable to Atlantic Power Corporation	\$ 0.23	\$ (0.03)	\$ (0.01)	\$ 0.14	\$ 0.33
Weighted average number of common shares outstanding-basic	109.6	111.1	112.4	114.8	112.0
Diluted income (loss) per share attributable to Atlantic Power Corporation	\$ 0.18	\$ (0.03)	\$ (0.01)	\$ 0.12	\$ 0.29
Weighted average number of common shares outstanding-diluted	140.7	111.1	112.4	140.6	141.8

ATLANTIC POWER CORPORATION
SCHEDULE I—CONDENSED BALANCE SHEETS (PARENT COMPANY ONLY)
(in millions of U.S. dollars)

	December 31,	
	2019	2018
Assets		
Current assets:		
Cash and cash equivalents	\$ 43.2	\$ 42.4
Prepayments and other current assets	0.8	3.3
Total current assets	44.0	45.7
Investment in and advances to / from subsidiaries	0.3	51.6
Total assets	<u>\$ 44.3</u>	<u>\$ 97.3</u>
Liabilities		
Current liabilities:		
Accounts payable and accrued liabilities	\$ 3.6	\$ 3.4
Derivative liability	3.2	1.2
Convertible debentures	—	18.1
Total current liabilities	6.8	22.7
Convertible debentures	81.1	80.4
Other long-term liabilities	1.4	1.1
Total liabilities	89.3	104.2
Shareholders' equity	(45.0)	(6.9)
Total liabilities and shareholders' equity	<u>\$ 44.3</u>	<u>\$ 97.3</u>

See accompanying notes to condensed financial statements.

ATLANTIC POWER CORPORATION
SCHEDULE I—CONDENSED STATEMENTS OF OPERATIONS (PARENT COMPANY ONLY)
(in millions of U.S. dollars)

	Year Ended December 31,		
	2019	2018	2017
Administrative and other expenses:			
Administrative expense	\$ 4.6	\$ 5.0	\$ 5.4
Interest expense, net	10.0	13.5	11.6
Foreign exchange loss (gain)	4.3	(9.4)	4.0
Other expense (income)	2.0	(3.1)	0.2
Loss from parent company	(20.9)	(6.0)	(21.2)
Equity (loss) earnings of subsidiaries, net of income tax benefit	(22.9)	43.2	(71.8)
Net (loss) income	<u>\$ (43.8)</u>	<u>\$ 37.2</u>	<u>\$ (93.0)</u>

See accompanying notes to condensed financial statements.

ATLANTIC POWER CORPORATION
SCHEDULE I—CONDENSED STATEMENTS OF CASH FLOWS (PARENT COMPANY ONLY)
(in millions of U.S. dollars)

	Years Ended December 31,		
	2019	2018	2017
Cash provided by operating activities:			
Net (loss) income	\$ (43.8)	\$ 37.2	\$ (93.0)
Adjustments to reconcile net income (loss) to net cash provided by operating activities:			
Non-cash losses (earnings) from subsidiaries, net of taxes	22.9	(43.2)	71.8
Dividends received from subsidiaries	68.5	39.0	67.9
Unrealized foreign exchange loss (gain)	4.3	(9.4)	4.0
Change in fair value of convertible debenture conversion option derivative	1.8	(3.2)	—
Amortization of debt discount and deferred financing costs	0.7	2.6	—
Change in other operating balances			
Accounts receivable	(9.0)	7.4	(1.1)
Prepayments and other assets	2.5	1.0	1.4
Accounts payable and accrued liabilities	1.4	0.8	0.5
Cash provided by operating activities	49.3	32.2	51.5
Cash used in investing activities:			
Advances to / from investments in subsidiaries	(27.5)	2.4	(57.8)
Cash paid for acquisition	—	(13.6)	—
Deposit for acquisition	—	(2.6)	—
Cash used in investing activities	(27.5)	(13.8)	(57.8)
Cash used in financing activities:			
Common share repurchases	(2.5)	(16.6)	(0.2)
Repayment of convertible debentures	(18.5)	(88.1)	—
Deferred financing costs	—	(5.1)	—
Proceeds from convertible debenture issuance	—	92.2	—
Repayment of intercompany note	—	(0.2)	(0.9)
Cash used in financing activities	(21.0)	(17.8)	(1.1)
Net increase (decrease) in cash and cash equivalents	0.8	0.6	(7.4)
Cash, restricted cash and cash equivalents at beginning of period	42.4	41.8	49.2
Cash, restricted cash and cash equivalents at end of period	<u>\$ 43.2</u>	<u>\$ 42.4</u>	<u>\$ 41.8</u>
Supplemental cash flow information			
Interest paid	\$ 5.2	\$ 4.7	\$ 6.2

See accompanying notes to condensed financial statements

ATLANTIC POWER CORPORATION

SCHEDULE I—NOTES TO CONDENSED FINANCIAL STATEMENTS (PARENT COMPANY ONLY)

(in millions of U.S. dollars)

1. Nature of business

Atlantic Power Corporation (the “Parent Company”) is a holding company that conducts substantially all of its business through its subsidiaries. As specified in certain of its subsidiaries' credit agreements, there are restrictions on the Parent Company's ability to obtain funds from certain of its subsidiaries through dividends (refer to Note 11, “Long-term debt”, to the consolidated financial statements). As of December 31, 2019, total Atlantic Power Corporation shareholders' deficit was \$45.0 million and approximately \$5.3 million of net assets at certain subsidiaries constituted restricted net assets as defined in Rule 4-08(e)(3) of Regulation S-X. The restricted net assets of these subsidiaries exceeded our consolidated net assets, thus requiring this Schedule I, “Condensed Financial Information of the Registrant.” Accordingly, the balance sheets as of December 31, 2019 and 2018, and the statements of operations and cash flows for the years ended December 31, 2019, 2018 and 2017, have been presented on a “Parent-only” basis. In these statements, the Parent Company's investments in its consolidated subsidiaries are presented under the equity method of accounting. We had no undistributed earnings from our unconsolidated investments for the years ended December 31, 2019, 2018 and 2017, respectively.

As disclosed in Note 12 of the consolidated financial statements, APLP Holdings may be restricted from making dividend payments or other distributions to Atlantic Power Corporation, and APLP and its subsidiaries may be prohibited from making dividends or distributions to Atlantic Power Preferred Equity Limited shareholders in the event of a covenant default or if APLP Holdings fails to achieve a target principal amount on the Term Loan that declines quarterly based on a predetermined specified schedule. APLP Holdings has made principal payments to meet the targeted debt balance requirement as of December 31, 2019 and is not prohibited from making dividends to the Parent Company. The consolidated equity of APLP Holdings was approximately \$4.9 million at December 31, 2019 and includes the subsidiaries with restricted net assets of \$5.3 million at December 31, 2019 disclosed above.

The Parent-only financial statements should be read in conjunction with our consolidated financial statements included elsewhere herein.

2. Dividends received

The Parent Company received dividends of \$68.5 million, \$39.0 million and \$67.9 million in 2019, 2018 and 2017, respectively, from its consolidated and unconsolidated subsidiaries.

ATLANTIC POWER CORPORATION
SCHEDULE II—VALUATION AND QUALIFYING ACCOUNTS
FOR THE YEARS ENDED DECEMBER 31, 2019, 2018 and 2017

(in millions of U.S. dollars)

	<u>Balance at Beginning of Period</u>	<u>Charged to Costs and Expenses</u>	<u>Charged to Other Accounts</u>	<u>Deductions</u>	<u>Balance at End of Period</u>
Income tax valuation allowance, deducted from deferred tax assets:					
Year ended December 31, 2019	\$ 139.7	\$ 5.7	\$ —	\$ —	\$ 145.4
Year ended December 31, 2018	\$ 151.4	\$ (11.7)	\$ —	\$ —	\$ 139.7
Year ended December 31, 2017	\$ 186.0	(34.6)	\$ —	\$ —	\$ 151.4