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CREDIT OPINION
4 December 2019

Update

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RATINGS

Ontario Power Generation Inc.

Domicile	Ontario, Canada
Long Term Rating	A3
Type	Senior Unsecured - Dom Curr
Outlook	Stable

Please see the ratings section at the end of this report for more information. The ratings and outlook shown reflect information as of the publication date.

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Ontario Power Generation Inc.

First-time rating on Ontario based generation company

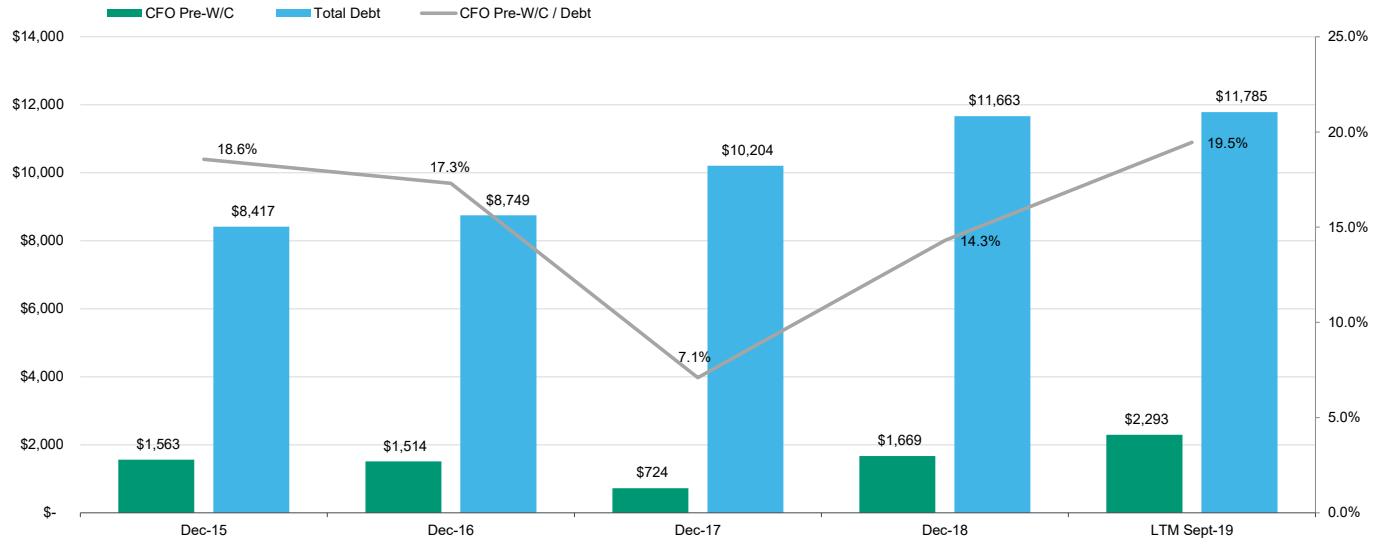
Summary

OPG's A3 rating reflects a baseline credit assessment (BCA) of baa3 with a 3 notch uplift based on high dependence and a high probability of extraordinary support from the Province of Ontario (Aa3 stable).

OPG's baa3 BCA benefits from its substantial regulated nuclear and hydroelectric operations that are expected to generate the vast majority of its relatively stable cash flow. OPG's contracted assets generally benefit from long contract tenors and a strong counterparty in the Ontario Independent Electricity System Operator (IESO, Aa3 stable) to which the majority of assets are contracted and pass through most of their costs. The company also has diversification benefits across its extensive fleet. Offsetting these strengths, the company is exposed to availability risk across its fleet of generation assets, and some hydrology risk. While small, its merchant generation segment is growing as a result of several 100% debt financed acquisitions and the potential remains for further debt financed M&A activity. Nonetheless, we expect the company's CFO Pre-W/C to debt metric to be sustained in the 13-17% range. The company is also pursuing a CAD12.8 billion nuclear refurbishment project across 4 units at its Darlington nuclear generation station that carries a very high level of execution risk.

OPG is 100% owned by the Province and is considered a government related issuer (GRI) under our GRI methodology. The three notch uplift attributed to OPG as a GRI incorporates our expectation of an enduring link between OPG and the Province. Our high support assumption considers that OPG produces more than half of the power generated in the Province at a comparatively low cost, making its infrastructure essential to the Ontario economy. OPG also implements government policy, its board is appointed by the Province and through the Ontario Electricity Financial Corporation (OEFC, Aa3 stable), it is a source of debt financing. Our assessment of high default dependence reflects that both OPG and the Province largely rely on the same revenue base and share some political risks.

Exhibit 1
Historical CFO Pre-WC, Total Debt and CFO Pre-WC to Debt ($ MM)



Source: Moody's Financial Metrics

Credit strengths

» Primarily regulated generation facilities support stable cash flow generation

» Non-regulated segment dominated by long term contracts

» Our expectation of support from the Province of Ontario given its 100% ownership

» Diversification benefits by both generating station and fuel source

Credit challenges

» Financial metrics pressured by 3 debt financed acquisitions with the potential for further debt financed M&A

» CAD12.8 billion nuclear refurbishment project is underway that has a very high level of execution risk

» Growing unregulated segment that has more risk

» Availability risk across the fleet, low levels of hydrology and related risks

Rating outlook

The stable outlook incorporates the following expectations:

» The company continues to execute the Darlington nuclear refurbishment on time and budget

» CFO pre-WC/debt remains in the 13-17% range

» The relationship with the Province remains stable and supportive

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the ratings tab on the issuer/entity page on www.moodys.com for the most updated credit rating action information and rating history.

Factors that could lead to an upgrade

» A material improvement in financial metrics such that CFO pre-WC/debt is sustained above 20%

» An improvement in regulatory outcomes or business risk profile

Factors that could lead to a downgrade

» Challenges executing the Darlington nuclear refurbishment

» A weakening of the business risk profile by for example by further growing the merchant segment

» A reduction in the probability of support from the Province

» A deterioration in financial metrics such that CFO pre-WC/debt is forecast to decline below 12% on a sustained basis

Key indicators

Exhibit 2
Rating Factors
Ontario Power Generation Inc.

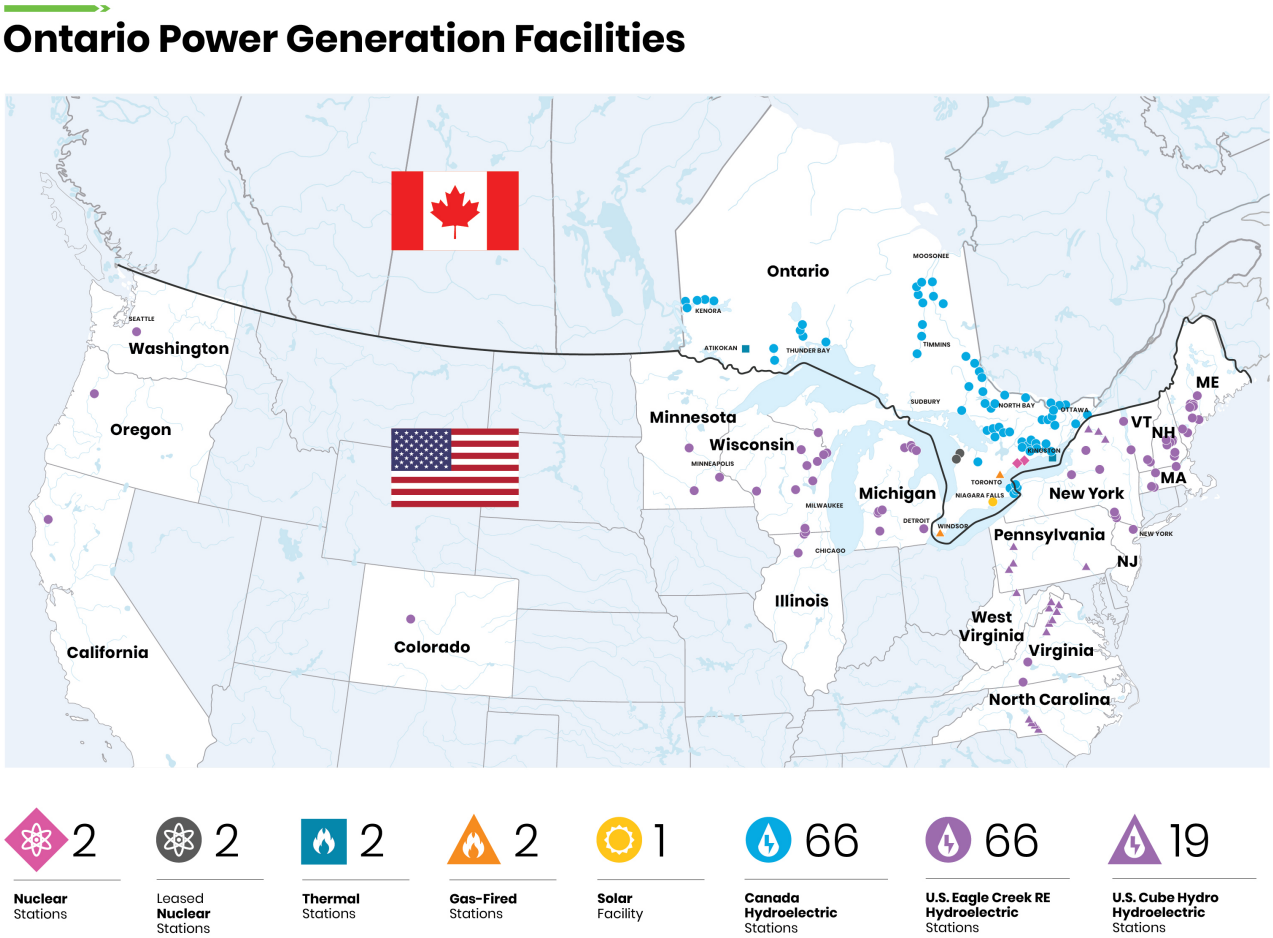
	Dec-15	Dec-16	Dec-17	Dec-18	LTM Sept-19
CFO Pre-W/C + Interest / Interest	4.8x	4.9x	2.8x	4.7x	6.4x
CFO Pre-W/C / Debt	18.6%	17.3%	7.1%	14.3%	19.5%
CFO Pre-W/C – Dividends / Debt	18.4%	17.1%	7.0%	11.7%	19.3%
Debt / Capitalization	43.8%	43.9%	44.7%	45.6%	44.1%

[1] All ratios are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.
[2] As of 9/30/2019 (L)
[3] This represents Moody's forward view; not the view of the issuer; and unless noted in the text, does not incorporate significant acquisitions and divestitures.
Source: Moody's Financial Metrics

Profile

Headquartered in Toronto, Ontario, OPG is an electricity generation company wholly owned by the Province with an in-service generating capacity of 16,629MW at Sept 30, 2019 . At that time OPG owned and operated 72 generating stations, 2 of which are nuclear, 66 hydroelectric, 3 thermal and 1 solar facility in Ontario, Canada. In the US, OPG also owns and operates 65 hydroelectric stations and has interests in 14 other hydroelectric and 2 solar facilities through Eagle Creek Renewable Energy, LLC (Eagle Creek, not rated) acquired in November 2018 with approximately 226 MW of in-service capacity at December 31, 2018. OPG's nuclear and most of its hydroelectric facilities are regulated by the Ontario Energy Board (OEB). On October 7 the company acquired Cube Hydro with 385MW of capacity.

Exhibit 3
OPG's service territory



Source: OPG

Detailed credit considerations

Primarily regulated and contracted assets generate predictable cash flow

OPG's strong business risk profile is driven by its high proportion of regulated and contracted cash flow. Regulated earnings from OEB rate regulated assets will decline from FYE 2018 reported levels of about 80% of EBITDA towards 70% in 2020. Contracted assets will increase from about 19% to the low 20% range while higher risk US assets that are primarily merchant plants will increase from a negligible amount in 2018 to about 5%. Changes in the EBITDA mix are primarily driven by recent M&A activity. The company has extensive diversity by business line and within each segment that reduces volatility. It also has some hydrology risk, albeit low, and negligible levels of commodity price risk, a key credit positive. Unlike most other regulated utilities, OPG owns generating assets only and does not have any lower risk transmission and distribution assets. As a result, as a higher risk generation company, OPG is exposed to availability risks on all of its assets.

The company's regulated assets should provide reasonably stable cash flow going forward. A multi-year rate decision from 2017-2021 establishes prices for the regulated nuclear and hydroelectric assets.

The nuclear generation facilities are regulated by a custom incentive regulation decision that was issued in December 2017. It establishes prices for generation and incorporates a step up in rate base, that is reflected in higher rates, with the completion of the first unit refurbishment at the Darlington nuclear generation station. Rates in the first half of 2017 of $59.29 MWh grew to $77.96 in the second half of the year and will reach $95.83 (inclusive of rate riders and variance accounts) in 2021 which should drive growth in earnings. Nuclear rate base is allowed an ROE of 8.8% and hydroelectric 9.3% and both have equity capital of 45%. However, achieving the allowed ROE in the nuclear segment could be challenging given an OM&A cost disallowance of about CAD100 million primarily for performance and compensation when benchmarked to comparators. The segment also benefits from diversification across 2 nuclear generating stations with 4 and 6 operating reactors respectively that enable the company to maintain high levels of generation and cash flow while undertaking the nuclear refurbishment. The shutdown of the Pickering nuclear generating station in 2024 will reduce diversity and, with fewer operating nuclear units, heighten the impact of any unplanned outages.

The regulated hydroelectric facilities includes 54 generating stations in Ontario across a number of river systems with prices established by incentive rate mechanism. Regulated prices for the period beginning after June 1, 2017 are calculated annually and use a base regulated price escalated with an OEB approved formula for inflation less a 0% productivity factor adjustment and a -0.3% stretch factor adjustment.

The regulated segments are challenged by rate case and cash flow lag. The last rate decision was published in December 2017 with a payments amount order issued on March 29, 2018, well after the 2017-2021 period had begun. Regulated prices prior to June 1, 2017 were established in the fourth quarter of 2014. The company frequently has regulatory assets and liabilities which may take several years to be recovered, leading to some cash flow variability.

The contracted and other generating segment consists of lower risk contracted assets in Ontario and higher risk, primarily merchant US based assets that the company has been acquiring. Acquisitions may double the EBITDA of the segment in 2020.

Ontario based assets are all under contract on generally favorable terms and almost all of the contracts are with the IESO. The largest of these is the project financed Lower Mattagami Energy Limited Partnership (A2 stable) which contributes almost two thirds of the segment's EBITDA. It, and other contracted hydro facilities like it, including UMH Energy Partnership (A2 stable), have strong contract terms which include limited hydrology risk and contract expiries over the period 2059-2067. The Ontario thermal plants in this segment have substantial capacity, but are largely peaking facilities and have very low levels of generation. They are primarily compensated based on their availability and have cost pass through provisions, however they have much shorter contract tenors.

The Ontario CCGT plants being acquired have a similar risk profile as the existing thermal fleet in Ontario. A key hurdle to closing the transaction is the successful completion of the Napanee 900MW CCGT which has a 20 year contract from the IESO. TC Energy has experienced difficulties completing the project on time and budget as the cost estimate is now CAD1.8 billion, up from CAD1.1 billion, and the in-service date has slipped from 2018 to commercial in service late in the first quarter of 2020. Key closing terms of the transaction relate to commercial in-service and associated performance testing of this asset. The US assets, which consist of Eagle Creek and the acquisition of Cube Hydro that closed Oct 2019, have some contracts, but are primarily merchant assets with substantially more risk than the rest of the portfolio.

Exhibit 4

Asset acquired	Capacity (MW)	Fuel feedstock	Announcement date	Closing date	Enterprise value (CAD billion)	Acquisition Price (CAD billion)	Assumed debt (CAD billion)
Ontario CCGT	1858	Natural Gas	30-Jul-19	Q1 2020	2.9	2.9	0
Cube Hydro	385	Hydro	25-Jun-19	Oct-19	1.5	0.0	ND [2]
Eagle Creek	226 [1]	76 hydro 2 solar plants	9-Aug-18	Nov-18	0.7	0.4	0.3

[1] 226MW at FYE 2018.
[2] The amount of assumed debt has not been publicly disclosed.
Source: Company filings

Darlington refurbishment carries a very high level of execution risk

Also weighing on the company's' business risk profile is the undergoing nuclear refurbishment at the Darlington Generation Station, which is forecast to cost CAD12.8 billion and take about a decade to refurbish all 4 units. The first refurbished unit is expected to return to service in the second quarter of 2020. While the refurbishment of the first unit is about a quarter behind schedule, management believes that the overall cost and schedule to complete all 4 units remains on target. The next unit refurbishment will be slightly delayed so that overall nuclear generation levels will not be significantly affected, limiting the impact on cash flow. The last regulatory decision incorporated the forecasted Unit 2 spending into rate base, so it will already be reflected in both rate base and revenues without the need to file a rate case in 2020.

Exhibit 5

Darlington	Capacity	Refurbishment start date	Refurbishment completion date
Unit 2	878	Oct-16	Q2 2020
Unit 3	878	2020	2023
Unit 1	878	2021	2024
Unit 4	878	2023	2026

Source: Company filings

Financial metrics pressured by 3 debt financed acquisitions

We expect CFO pre-WC/Debt to be in the range of 13-17% over the next few years while the company moves forward with the debt financed acquisition of Cube Hydro (unrated), which closed on October 7, 2019, and the thermal assets from TC Energy Inc. Collectively, these transactions reflect an enterprise value of CAD5 billion that we expect to be debt financed, placing pressure on financial metrics. The company closed the smallest acquisition, Eagle Creek, in November of 2018. Further debt financed M&A remains a risk, although management has indicated that they plan to focus on their existing assets.

We expect internally generated cash flow to fund the capital program, which is primarily centered on the Darlington refurbishment. The company seldom pays dividends with the only dividends paid connected to asset sales (property sales, not generation facilities) that it was directed to make by the government. We expect any excess cash flow to be used to repay debt.

There is some structural subordination stemming from project finance debt at Canadian contracted assets totaling about CAD2 billion at FYE 2018 and a small amount of debt on US assets. However, unlike the vast majority of regulated utilities, there is no debt outstanding at the regulated businesses that post acquisitions will generate about 70% of EBITDA. That, in conjunction with primarily centralized funding for OPG, results in no notching for structural subordination. As of Q2 2019, OPG will no longer consolidate Fair Hydro Trust, leading to a reduction in consolidated debt of CAD900 million.

High support from the Province provides an uplift to OPG's credit profile

Given the 100% ownership interest held by the Province, OPG is considered a government related issuer (GRI) under our GRI methodology. Based on our estimate of high support in case of financial distress, the A3 credit profile incorporates 3 notches of uplift from OPG's BCA of baa3.

The company's ratings incorporate our expectation that extraordinary financial support to OPG would be forthcoming from the Province if needed. Our high support assumption considers that OPG produces more than half of the power in the Province at a comparatively low cost, making its infrastructure essential to the Ontario economy. OPG also implements government policy. The most recent example was OPG's role in Fair Hydro Trust, which was created by an act of Provincial legislation and designed to a play a significant role in reducing residential electricity rates by about 25%. Following a change in Provincial government and further legislative changes, as of Q2 2019, OPG will no longer consolidate the Trust, resulting in a decline in OPG's consolidated debt of CAD900 million. The Province also appoints OPG's board, agrees its business plans and through the OEFC is a source of debt financing. We do not believe there are any barriers that would prevent the Province from providing timely support.

Our assessment of high default dependence reflects that both OPG and the Province largely rely on the same revenue base and they share some political risks. While the OEFC is a source of financing, OPG has been increasing the level of its borrowing from public debt capital markets.

Environmental, social and governance considerations

OPG has a low carbon transition risk given that the vast majority of generation comes hydro and nuclear facilities. Its hydro facilities face some hydrology risk while a long-term nuclear refurbishment program entails high execution risk. Although two of OPG's three most recent acquisitions have been hydro facilities, it recently announced the acquisition of 1,858 MW of natural gas assets in Ontario, exposing it so some incremental carbon transition risk. Social risks are primarily related to demographic and societal trends and customer relations in Ontario, as its infrastructure is critical to the economy of the Province. OPG has developed programs and key success measures in order to continue to maintain its social license. OPG's governance benefits from 7 of its 8 directors being independent and by benchmarking itself to various governance guidelines.

Liquidity analysis

OPG has an adequate liquidity profile, despite material adverse change clauses in its bank credit facilities, and has significantly increased its sources of capital. As of 30 September 2019, the company had cash and cash equivalents of CAD1.5 billion (of which CAD20 million was restricted) and we forecast operating cash flow of about CAD2 billion over the next year. The company has a CAD1 billion committed credit facility of which CAD950 million matures May of 2024 and CAD50 million matures in May of 2023. In the third quarter of 2019, the company announced it had secured a CAD800 million committed credit facility with the OEFC that matures December 31, 2021 of which CAD100 million is drawn. After the close of the third quarter, the company announced it had binding commitments for a CAD1 billion 1 year term loan and a USD750 million 364 day revolving committed facility with a one year term out provision at the company's option. Its committed facilities backstop a CAD1 billion and USD750 million commercial paper programs respectively. Moody's expects the company to manage its program maturities, cash on hand and its swinglines in a prudent fashion. There are material adverse change clauses in its credit facilities that could prevent borrowings under certain circumstances. In addition, the company has a CAD400 million committed facility at the Lower Mattagami Energy Limited Partnership.

The company has significant uses of capital over the twelve months beginning at the start of Q4 2019. The company closed the acquisition of Cube Hydro for CAD1.5 billion on October 7, 2019 and expects to close the acquisition of assets from TC Energy Limited for CAD2.9 billion in Q1 2020. The company also has debt maturities of about CAD800 million and capex of about CAD2 billion over the next twelve months. The company's liquidity position benefits from the lack of steady dividends payable to the Province.

Rating methodology and scorecard factors

Exhibit 6

Rating Factors

Ontario Power Generation Inc.

Regulated Electric and Gas Utilities Industry Scorecard [1][2]	Current LTM 9/30/2019		Moody's 12-18 Month Forward View As of Date Published [3]	
Factor 1 : Regulatory Framework (25%)	**Measure**	**Score**	**Measure**	**Score**
a) Legislative and Judicial Underpinnings of the Regulatory Framework	Baa	Baa	Baa	Baa
b) Consistency and Predictability of Regulation	A	A	A	A
Factor 2 : Ability to Recover Costs and Earn Returns (25%)				
a) Timeliness of Recovery of Operating and Capital Costs	Baa	Baa	Baa	Baa
b) Sufficiency of Rates and Returns	Ba	Ba	Ba	Ba
Factor 3 : Diversification (10%)				
a) Market Position	A	A	A	A
b) Generation and Fuel Diversity	A	A	A	A
Factor 4 : Financial Strength (40%)				
a) CFO pre-WC + Interest / Interest (3 Year Avg)	4.5x	A	4.5x - 5.5x	A
b) CFO pre-WC / Debt (3 Year Avg)	14.3%	Baa	13% - 17%	Baa
c) CFO pre-WC – Dividends / Debt (3 Year Avg)	13.2%	Baa	13% - 17%	Baa
d) Debt / Capitalization (3 Year Avg)	43.9%	A	45% - 49%	Baa
Rating:				
Scorecard-Indicated Outcome Before Notching Adjustment		Baa2		Baa2
HoldCo Structural Subordination Notching		0		0
a) Indicated Outcome from Scorecard		Baa2		Baa2
b) Actual Rating Assigned		A3		A3

Government-Related Issuer	Factor
a) Baseline Credit Assessment	baa3
b) Government Local Currency Rating	Aa3
c) Default Dependence	High
d) Support	High
e) Final Rating Outcome	A3

[1] All ratios are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.
[2] As of 9/30/2019(L);
[3] This represents Moody's forward view; not the view of the issuer; and unless noted in the text, does not incorporate significant acquisitions and divestitures.
Source: Moody's Financial Metrics™

Appendix

Exhibit 7

Cash Flow and Credit Metrics [1]

CF Metrics	Dec-15	Dec-16	Dec-17	Dec-18	LTM Sept-19
As Adjusted					
FFO	1,337	1,563	1,044	1,482	1,785
+/- Other	226	(49)	(320)	187	508
CFO Pre-WC	1,563	1,514	724	1,669	2,293
+/- ΔWC	(129)	180	80	(160)	(17)
CFO	1,434	1,694	804	1,509	2,276
- Div	16	14	15	301	18
- Capex	1,286	1,693	1,713	1,648	1,901
FCF	132	(13)	(924)	(440)	357
(CFO Pre-W/C) / Debt	18.6%	17.3%	7.1%	14.3%	19.5%
(CFO Pre-W/C - Dividends) / Debt	18.4%	17.1%	7.0%	11.7%	19.3%
FFO / Debt	15.9%	17.9%	10.2%	12.7%	15.1%
RCF / Debt	15.7%	17.7%	10.1%	10.1%	15.0%
Revenue	5,476	5,653	5,158	5,537	5,975
Cost of Good Sold	643	701	684	668	667
Interest Expense	412	390	404	446	424
Net Income	408	349	403	270	380
Total Assets	44,254	44,415	48,831	52,134	54,007
Total Liabilities	34,446	34,167	37,233	39,399	40,321
Total Equity	9,808	10,248	11,598	12,735	13,686

[1] All figures and ratios are calculated using Moody's estimates and standard adjustments. Periods are Financial Year-End unless indicated. LTM = Last Twelve Months
Source: Moody's Financial Metrics

Exhibit 8

Ontario Power Generation Inc. Moody's - Adjusted Debt Breakdown

(In CN $ Millions)	FYE Dec-13	FYE Dec-14	FYE Dec-15	FYE Dec-16	FYE Dec-17	LTM Ending Sept-19
As Reported Debt	**5,657.0**	**5,730.0**	**5,684.0**	**5,522.0**	**6,579.0**	**8,031.0**
Pensions	2,750.0	3,579.0	2,614.0	3,029.0	3,437.0	3,656.0
Operating Leases	108.5	114.3	106.3	184.4	171.3	64.0
Non-Standard Adjustments	0.0	0.0	13.0	14.0	17.0	34.0
Moody's - Adjusted Debt	**8,515.5**	**9,423.3**	**8,417.3**	**8,749.4**	**10,204.3**	**11,785.0**

Based on consolidated financial data of Ontario Power Generation Inc. All figures are calculated using Moody's estimates and standard adjustments
Source: Moody's Financial Metrics

Exhibit 9

Peer Comparison Table [1]

	Ontario Power Generation Inc. A3 Stable (in CAD millions)			Public Service Enterprise Group Incorporated Baa1 Stable (in USD millions)			NextEra Energy, Inc. (P)Baa1 Stable (in USD millions)			Exelon Corporation Baa2 Stable (in USD millions)		
(in CAD millions)	FYE Dec-17	FYE Dec-18	LTM Sept-19	FYE Dec-17	FYE Dec-18	LTM Sept-19	FYE Dec-17	FYE Dec-18	LTM Sept-19	FYE Dec-17	FYE Dec-18	LTM Sept-19
Revenue	5,158	5,537	5,975	9,094	9,696	10,066	17,173	16,727	19,008	33,565	35,985	34,908
CFO Pre-W/C	724	1,669	2,293	3,209	3,075	2,901	7,480	7,257	7,530	8,436	8,412	7,755
Total Debt	10,204	11,663	11,785	14,537	16,509	16,899	34,691	37,302	41,080	39,688	40,803	42,246
CFO Pre-W/C / Debt	7.1%	14.3%	19.5%	22.1%	18.6%	17.2%	21.6%	19.5%	18.3%	21.3%	20.6%	18.4%
CFO Pre-W/C – Dividends / Debt	7.0%	11.7%	19.3%	16.1%	13.1%	11.6%	15.9%	13.5%	12.3%	18.1%	17.3%	15.0%
Debt / Capitalization	44.7%	45.6%	44.1%	43.5%	45.3%	44.7%	49.3%	45.0%	45.6%	47.8%	47.9%	47.5%

[1] All figures & ratios calculated using Moody's estimates & standard adjustments. FYE = Financial Year-End. LTM = Last Twelve Months. RUR* = Ratings under Review, where UPG = for upgrade and DNG = for downgrade
Source: Moody's Financial Metrics

Ratings

Exhibit 10

Category	Moody's Rating
ONTARIO POWER GENERATION INC.	
Outlook	Stable
Senior Unsecured -Dom Curr	A3
Commercial Paper	P-2

Source: Moody's Investors Service

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