MOODY'S
INVESTORS SERVICE

CREDIT OPINION
21 December 2020

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.

Update to credit analysis

Summary

Ontario Power Generation's (OPG) A3 rating reflects a Baseline Credit Assessment (BCA) of baa3 with a 3 notch uplift based on high dependence on and a high probability of extraordinary support from the Province of Ontario (Aa3 stable).

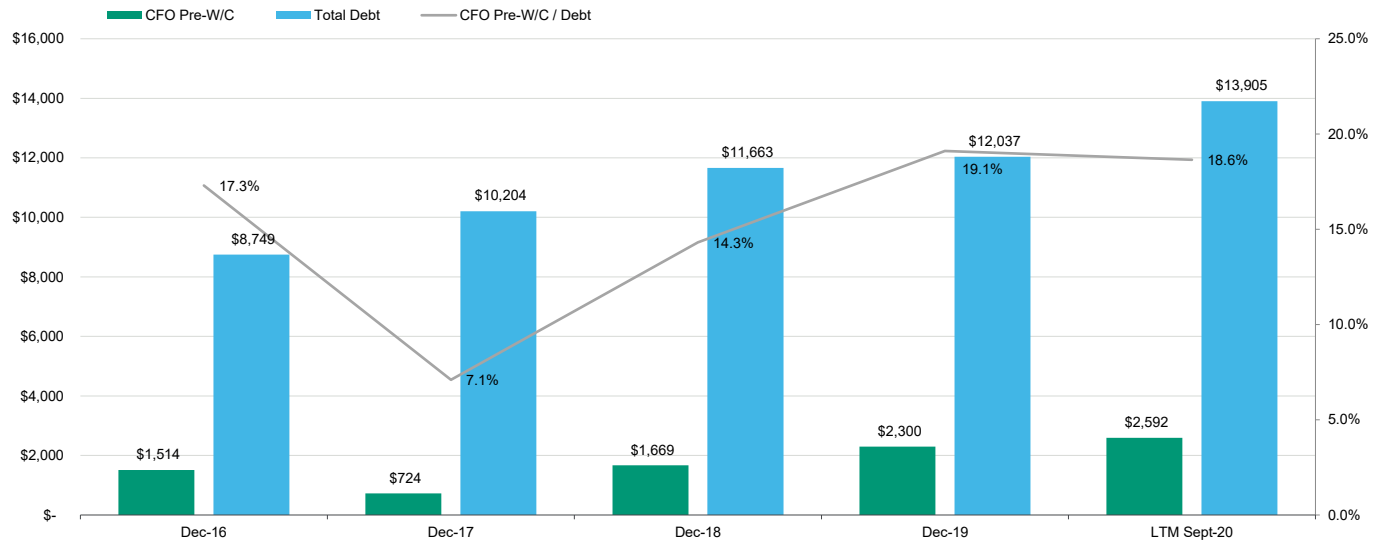
OPG's credit profile benefits from its substantial regulated nuclear and hydroelectric operations that are expected to generate the vast majority of its relatively stable cash flow. OPG's contracted assets generally benefit from long contract tenors and a strong counterparty in the Ontario Independent Electricity System Operator (IESO, Aa3 stable) to which the majority of assets are contracted and to which they pass through most of their costs. The company also has diversification benefits across its extensive fleet. Offsetting these strengths, OPG is exposed to availability risk across its fleet of generation assets, and some hydrology risk. While small, its merchant generation segment has grown as a result of several 100% debt financed acquisitions and the potential remains for further debt financed M&A. Nonetheless, we expect the company's CFO pre-W/C to debt ratio to be sustained in the 12-16% 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 of Ontario 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 the Ontario Electricity Financial Corporation (OEFC, Aa3 stable), a crown corporation, is a source of debt capital for OPG. 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.

COVID-19 developments

The rapid spread of the coronavirus outbreak, severe global economic shock, low oil prices, and asset price volatility are creating a severe and extensive credit shock across many sectors, regions and markets. The combined credit effects of these developments are unprecedented. We regard the coronavirus outbreak as a social risk under our ESG framework given the substantial implications for public health and safety. However, we expect OPG will be relatively resilient to recessionary pressures because of its rate regulated business model and supportive regulatory mechanisms.

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



Source: Moody's Financial Metrics

Credit strengths

» Primarily regulated generation facilities support stable cash flow generation

» Non-regulated generation 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

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

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

» Small but growing merchant cash flow has more risk

» Availability risk across the fleet, including low levels of hydrology risk

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 12-16% 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 increase 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 or delays executing the Darlington nuclear refurbishment

» A weakening of the business risk profile by, for example, 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 fall below 12% on a sustained basis

Key indicators

Exhibit 2
Ontario Power Generation Inc. [1]

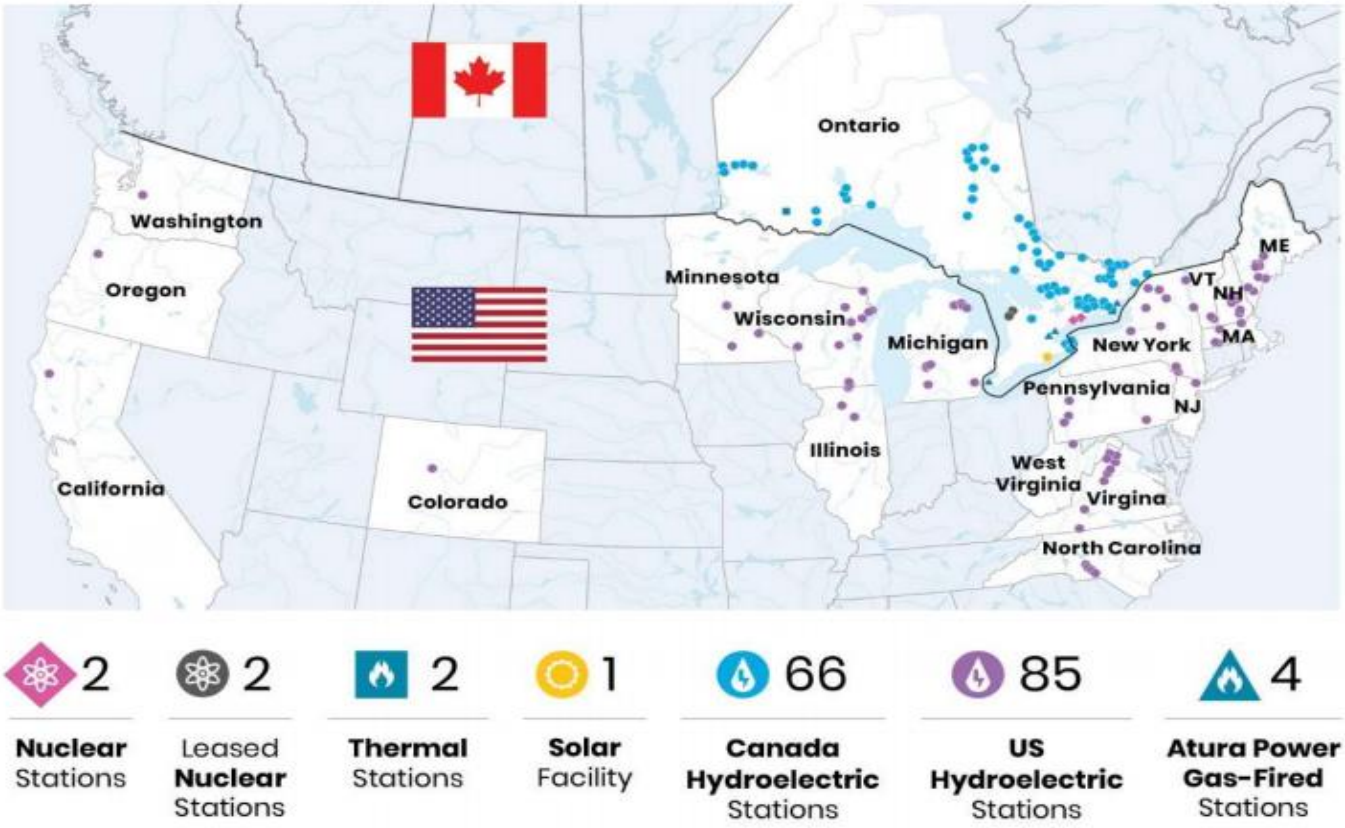
	Dec-16	Dec-17	Dec-18	Dec-19	LTM Sept-20
CFO Pre-W/C + Interest / Interest	4.9x	2.8x	4.7x	6.0x	5.6x
CFO Pre-W/C / Debt	17.3%	7.1%	14.3%	19.1%	18.6%
CFO Pre-W/C – Dividends / Debt	17.1%	7.0%	11.7%	19.0%	18.5%
Debt / Capitalization	43.9%	44.7%	45.6%	44.2%	45.6%

[1] All ratios are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.
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 18,876 MW at Sept 30, 2020. At that time OPG owned and operated 75 generating stations, 2 of which are nuclear, 66 hydroelectric, 2 thermal, 1 solar and 4 combined-cycle natural gas-fired plants in Ontario, Canada. In the US, OPG also wholly or jointly owns and operates 85 hydroelectric stations and has interests in 14 other hydroelectric and 2 solar facilities. OPG's nuclear and most of its hydroelectric facilities are regulated by the Ontario Energy Board (OEB).

Exhibit 3
OPG's service territory



Source: OPG Sept 30 2020

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 2019 reported levels of about 80% of EBITDA towards 70% in 2021. 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 the low single digits. 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 currently in place from 2017-2021 established prices for the regulated nuclear and hydroelectric assets over this period.

The nuclear generation facilities are regulated by a custom incentive regulation decision that was issued in December 2017. It established prices for generation and incorporates a step up in rate base, reflected in higher rates, as work progressed on the first Darlington nuclear unit refurbishment. Rates in the first half of 2017 of $59.29 MWh grew to $77.96 in the second half of that year and will reach $95.83 (inclusive of rate riders and variance accounts) in 2021, which has supported growth in earnings. Nuclear rate base is allowed an ROE of 8.8% and hydroelectric 9.3% and both have equity capital of 45%.

Achieving the allowed ROE in the nuclear segment may be challenging given an OM&A cost disallowance of about CAD100 million primarily for performance and compensation when benchmarked to comparators. However, this has been offset by improvements

throughout the business, in particular higher generation levels than previously anticipated in recent years. The segment also benefits from diversification across 2 nuclear generating stations, with 6 and 4 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. On November 10, 2020, the Province took steps to establish the hydroelectric base regulated price for the period 2021-2026 at the 2021 based regulated price. While this provides price certainty for the period, it may be challenging for OPG to earn its allowed returns over the period given ongoing investments in rate base assets during the period that exceed depreciation.

The regulated segments have been challenged by rate case and cash flow lag. The last rate decision was published in December 2017 with a payment amount order issued on March 29, 2018, well after the 2017-2021 period had begun. Regulated prices prior to June 1, 2017 had been 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 cash flow variability, a credit negative. We expect the company to file its next regulated nuclear rate case in the near term. We anticipate that the company will continue to receive rates that support the company's ongoing investments in their Darlington nuclear refurbishment project.

The contracted and other generating segment consists of lower risk contracted assets in Ontario and higher risk, primarily merchant US based assets. The company has completed both contracted and merchant acquisitions in the past few years driving growth in earnings and cash flow.

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 (A1 stable). 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. We expect these assets to contribute about 40% of the segment's EBITDA in 2021. The Ontario thermal plants in this segment have substantial capacity, but are largely peaking facilities and have low levels of generation. They are primarily compensated based on their availability and have cost pass through provisions, however they have shorter contract tenors compared to the contracted hydro facilities.

The Ontario CCGT plants that were acquired on April 29, 2020 for $2.8 billion have a similar risk profile as the existing thermal fleet in Ontario. A key hurdle to closing the transaction that led to some delays was the successful completion of the Napanee 900MW CCGT which has a 20 year contract from the IESO. The US assets, which consist of Eagle Creek and the acquisition of Cube Hydro that closed October 2019, have some contracts, but are primarily merchant assets with substantially more risk than the rest of the portfolio.

Exhibit 4
OPG acquired assets

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	29-Apr-20	2.8	2.8	0
Cube Hydro	385	Hydro	25-Jun-19	7-Oct-19	1.5	1.1	0.4
Eagle Creek	226(1)	76 hydro 2 solar plants	9-Aug-18	27-Nov-18	0.7	0.4	0.3

[1] 226MW at FYE 2018.
Source: Company filings

Darlington nuclear refurbishment carries a very high level of execution risk

Also weighing on the company's' business risk profile is the ongoing 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 returned to service in June of 2020. While the refurbishment of the first unit was a few months behind schedule, management believes that the overall cost and schedule to complete all 4 units remains on target with a modest Covid pandemic driven delay. The start of the unit 3 refurbishment was pushed back 3-4 months as a result of Covid and all subsequent refurbishments will likely be similarly delayed. The delay in the start to the refurbishment of Unit 3 led to higher generation levels than previously anticipated in 2020, driving increased cash flow. The last regulatory decision incorporated the forecasted capex to bring Unit 2 in service, so it is already reflected in both rate base and revenues without the need for OPG to file a rate case.

Exhibit 5
Darlington refurbishment timeline

Darlington	Capacity	Refurbishment start date	Refurbishment completion date
Unit2	878	Oct-16	Jun-20
Unit 3	878	Sep-20	Q1 2024
Unit 1	878	Q1 2022	Q2 2025
Unit 4	878	Q3 2023	Q4 2026

Source: Company filings

Financial metrics pressured by three debt financed acquisitions

We expect CFO pre-WC/Debt to be in the range of 12-16% over the next few years. Financial metrics will decline as the company digests recent debt financed acquisitions and the nuclear business, which has benefited from higher than anticipated generation levels, sees a reduction in generation levels. Collectively, the acquisitions reflect an enterprise value of CAD5 billion that has contributed to the increase in debt financing on the company's balance sheet. Despite the increase in debt, CFO Pre-W/C to debt remained resilient at 18.6% over the last twelve months ending September 30, 2020, only slightly down from 19.1% at FYE 2019. The company's CFO Pre-W/C has increased so far in 2020 as a result of several factors including 1) higher generation from the nuclear fleet owing to delays in the start of refurbishment at Unit 3, 2) some deferrals of planned maintenance into 2021 and 3) contributions from recently acquired assets. We expect cash flow and financial metrics to decline in 2021, primarily as a result of lower generation in the nuclear segment. Further debt financed M&A remains a risk, although management has indicated that they plan to focus on their existing assets. We believe any further acquisitions or investments will likely remain small.

We expect internally generated cash flow and debt issuances to fund the capital program, of which half is focussed 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 Ontario government.

There is some structural subordination stemming from project finance debt at Canadian contracted assets totaling about CAD2 billion at FYE 2019 and about CAD700 million 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 no longer consolidates Fair Hydro Trust, leading to a reduction in consolidated debt of CAD900 million.

High support from the Province of Ontario 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 that can have mixed credit implications. 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 no longer consolidates the Trust, resulting in a decline in OPG's consolidated debt of CAD900 million. The Province also appoints OPG's board, agrees to its business plans and is a source of debt financing through the OEFC. 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.

ESG considerations

OPG has a low carbon transition risk given that the vast majority of generation comes from 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 modest incremental carbon transition risk. In November 2020, OPG committed to achieve net zero carbon emission by 2040. 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 9 of its 10 directors being independent and by benchmarking itself to various governance guidelines.

Liquidity analysis

OPG has an adequate liquidity profile driven by its CAD3.2 billion (around CAD1.6 billion available as of September 2020) of credit facilities and expected cash flow that together are sufficient to cover its uses for the next 12 months.

As of September 2020, OPG has a CAD1 billion committed credit facility of which around CAD950 million matures in May of 2024 and CAD50 million matures in May of 2023. OPG also has a USD750 million 364 day revolving committed facility that expires in November of 2021 with a one year term out provision at the company's option. Both of these facilities backstop CAD1 billion and USD750 million commercial paper programs that had CAD658 million outstanding as of September 2020. The company also has a CAD800 million committed credit facility with the OEFC that matures in December 2021 of which CAD300 million is available that we expect to be extended in the near term, an important consideration in our liquidity analysis. In addition, the company has CAD400 million committed facility at Lower Mattagami Energy Limited Partnership. In March 2020, the company executed a CAD1 billion term loan facility (CAD 400 million outstanding as of September 2020) with expiry in March 2021, however because the expiry of this facility is less than a year we do not include it in our liquidity calculations.

Moody's forecasts cash flow from operations of around CAD1.8-1.9 billion in the next twelve months in addition to the available credit facilities and cash and cash equivalents of CAD828 million as of September 2020 to be sufficient to cover the uses comprising around CAD2.6 billion of expected capital expenditure and around CAD1.5 billion of debt maturities in the next 12 months. We expect OPG will rely in part on debt to finance its ongoing capex and refinance its upcoming debt maturities. The company's liquidity position benefits from the lack of regular dividends payable to the Province.

There are material adverse change clauses in its credit facilities that could prevent borrowings under certain circumstances. Moody's expects the company to manage its program maturities, cash on hand and its swinglines in a prudent fashion.

Rating methodology and scorecard factors

Rating Factors
Ontario Power Generation Inc.

Regulated Electric and Gas Utilities Industry [1][2]	Current LTM 9/30/2020		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)	5.2x	A	4.5x - 5.5x	A
b) CFO pre-WC / Debt (3 Year Avg)	16.7%	Baa	12% - 16%	Baa
c) CFO pre-WC – Dividends / Debt (3 Year Avg)	15.7%	Baa	12% - 16%	Baa
d) Debt / Capitalization (3 Year Avg)	44.8%	A	45% - 49%	Baa
Rating:				
Scorecard-Indicated Outcome Before Notching Adjustment		Baa1		Baa1
HoldCo Structural Subordination Notching		0		0
a) Scorecard-Indicated Outcome		Baa1		Baa1
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) Actual Rating Assigned	A3

[1] All ratios are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.
[2] As of 9/30/2020(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™

Ratings

Exhibit 7

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

Source: Moody's Investors Service

Appendix

Exhibit 8

Cash Flow and Credit Metrics [1]

CF Metrics	Dec-16	Dec-17	Dec-18	Dec-19	LTM Sept-20
As Adjusted					
FFO	1,563	1,044	1,482	1,828	2,383
+/- Other	(49)	(320)	187	472	209
CFO Pre-WC	1,514	724	1,669	2,300	2,592
+/- ΔWC	180	80	(160)	99	422
CFO	1,694	804	1,509	2,399	3,014
- Div	14	15	301	17	19
- Capex	1,693	1,713	1,648	1,851	1,539
FCF	(13)	(924)	(440)	531	1,456
(CFO Pre-W/C) / Debt	17.3%	7.1%	14.3%	19.1%	18.6%
(CFO Pre-W/C - Dividends) / Debt	17.1%	7.0%	11.7%	19.0%	18.5%
FFO / Debt	17.9%	10.2%	12.7%	15.2%	17.1%
RCF / Debt	17.7%	10.1%	10.1%	15.0%	17.0%
Revenue	5,653	5,158	5,537	6,022	6,980
Cost of Good Sold	701	684	668	674	757
Interest Expense	390	404	446	462	564
Net Income	349	403	270	758	972
Total Assets	44,415	48,831	52,134	55,183	59,700
Total Liabilities	34,167	37,233	39,399	41,286	44,603
Total Equity	10,248	11,598	12,735	13,897	15,097

[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 9

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

(In CN $ Millions)	FYE Dec-15	FYE Dec-16	FYE Dec-17	FYE Dec-18	FYE Dec-19	LTM Ending Sept-20
As Reported Debt	**5,684.0**	**5,522.0**	**6,579.0**	**7,878.0**	**8,390.0**	**10,251.0**
Pensions	2,614.0	3,029.0	3,437.0	3,656.0	3,585.0	3,585.0
Operating Leases	106.3	184.4	171.3	72.5	55.0	49.0
Non-Standard Adjustments	13.0	14.0	17.0	56.0	7.0	20.0
Moody's - Adjusted Debt	**8,417.3**	**8,749.4**	**10,204.3**	**11,662.5**	**12,037.0**	**13,905.0**

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 10

Peer Comparison Table [1]

	Ontario Power Generation Inc. A3 Stable			Public Service Enterprise Group Incorporated Baa1 Stable			NextEra Energy, Inc. (P)Baa1 Stable			Exelon Corporation Baa2 Stable		
(in US millions)	FYE Dec-18	FYE Dec-19	LTM Sept-20	FYE Dec-18	FYE Dec-19	LTM Sept-20	FYE Dec-18	FYE Dec-19	LTM Sept-20	FYE Dec-18	FYE Dec-19	LTM Sept-20
Revenue	4,274	4,538	5,191	9,696	10,076	9,679	16,727	19,204	18,189	35,978	34,438	33,265
CFO Pre-W/C	1,288	1,733	1,928	3,224	3,111	3,012	7,287	7,938	8,589	8,412	8,176	7,864
Total Debt	8,539	9,282	10,410	16,509	17,416	18,332	37,302	42,303	48,016	40,803	42,843	44,204
CFO Pre-W/C / Debt	14.3%	19.1%	18.6%	19.5%	17.9%	16.4%	19.5%	18.8%	17.9%	20.6%	19.1%	17.8%
CFO Pre-W/C – Dividends / Debt	11.7%	19.0%	18.5%	14.0%	12.4%	11.1%	13.8%	12.9%	12.2%	17.3%	15.8%	14.4%
Debt / Capitalization	45.6%	44.2%	45.6%	45.3%	45.1%	45.4%	44.9%	45.4%	48.4%	47.9%	47.7%	47.9%

[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

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