COST OF LONG-TERM DEBT

1.0 PURPOSE

This evidence describes the methodology used to determine the long-term debt and associated cost for OPG's regulated operations for the IR term. It also provides details of OPG's existing and planned long-term borrowing and associated costs for 2016 to 2026.

2.0 OVERVIEW

The long-term debt supporting OPG's regulated operations is comprised of existing and planned long-term debt issues plus a long-term debt provision required to reconcile OPG's regulated debt to its OEB-approved capital structure. The summary of capitalization for the IR term is provided in Ex. C1-1-1, Tables 1 through 11.

OPG established a Medium Term Notes program in September 2017 to access the public debt market. The Medium Term Notes program diversifies OPG's source of funding beyond the existing credit facility with the Ontario Electricity Financial Corporation ("OEFC"), with comparable financing costs.

In line with OPG's focus on supporting climate change strategies, certain of the Medium Term Notes are issued as Green Bonds to finance eligible projects that offer tangible environmental benefits, as defined under OPG's Green Bond Framework, such as investments that help to supply energy from renewable sources. OPG's inaugural Green Bond issuance was in 2018.

OPG has used the same methodology to determine the regulated portion of existing and planned long-term debt as was approved by the OEB in previous payment amounts proceedings.

3.0 METHODOLOGY

3.1 Project-Related Long-Term Debt Issues

OPG assigns all existing and planned financing related to specific projects and other investments to regulated or unregulated operations based on whether the investment is related to its regulated assets. This approach includes the Green Bond portion of the long-term debt portfolio, which is assigned on the basis of the actual allocation of funding proceeds to underlying eligible projects and investments. All financing related to projects and other specific investments that is not associated with OPG's regulated assets is assigned to unregulated operations.

3.2 Corporate Long-Term Debt Issues

The portfolio of long-term debt remaining after assignment of financing related to specific projects and other investments is allocated to regulated and unregulated operations ("remaining long-term debt").

For the IR term, OPG has applied the allocation methodology approved by the OEB in prior payment amounts proceedings. Under this methodology, the book value of OPG's net fixed assets (gross fixed assets less accumulated depreciation plus construction work in progress plus other debt funded assets) is used to allocate the remaining long-term debt.[1] The net fixed asset values are adjusted to remove asset values that were financed pursuant to project-related arrangements, and nuclear liabilities (the lesser of OPG's asset retirement cost and unfunded nuclear liabilities). The adjusted relative net fixed asset ratio is then applied to OPG's remaining long-term debt to determine the amount of existing/planned debt to be included in the long-term debt component of OPG's capital structure for its regulated assets.

The allocation ratios are used to allocate company-wide borrowing in Ex. C1-1-2, Table 2 (2016) through Ex. C1-1-2, Table 12 (2026). The allocation ratios are calculated in Ex. C1-1-2, Table 1. Consistent with the approach in prior payment amounts proceedings, OPG has

[1] "Other funded assets" includes OPG debt funded portion of long-term receivable balance from Fair Hydro Trust, which arose subsequent to EB-2016-0152 and is not part of regulated operations.

used information from its most recent audited financial statements (2019) to develop the allocation factor for 2020 to 2026.

4.0 COST OF EXISTING AND PLANNED NEW DEBT ISSUES

4.1 Existing Debt Issues

OPG's debt continuity schedules (Ex. C1-1-2, Tables 2 through 5) provide the actual cost of debt issued and outstanding between January 1, 2016 and December 31, 2019.[2] The average remaining term of these long-term debt issues is approximately 17 years as at December 31, 2019.

Existing OEFC corporate debt and Medium Term Notes will be retired or refinanced at maturity depending on OPG's liquidity at that time. OPG does not plan to redeem the debt prior to its maturity since both the OEFC credit agreement and the Trust Indenture contain call provisions that make it more expensive to redeem the debt compared to the potential benefit of refinancing in a lower interest rate environment.

OPG's long-term debt outstanding at December 31, 2019, as reflected in OPG's 2019 financial results, is $8,233M. Project-related debt for OPG's regulated operations includes $575M of debt held by the OEFC for the Niagara Tunnel, $418M of green bond proceeds assigned to regulated hydroelectric projects and $25M of nuclear related insurance-linked bonds.[3] The portion of project-related debt directly associated with unregulated operations is $4,155M. The remaining $3,060M of corporate debt is allocated to regulated and unregulated operations based on the methodology described in Section 3.2.

4.2 Interest Rate on Planned New Debt Issues

The rate of interest on OPG's debt is determined using the same methodology as described in prior OEB payment amounts applications. For both the Medium Term Notes and the OEFC debt, interest rates are determined based on market conditions as well as OPG specific

[2] Long-term debt outstanding prior to January 1, 2016 is detailed in EB-2016-0152 Ex. C1-1-2 Table 2 (2013), Table 3 (2014) and Table 4 (2015).
[3] Insurance-linked bonds are denoted as "ILB" in tables accompanying this schedule.

credit considerations. In considering OPG specific credit conditions, investors analyze OPG's creditworthiness with the use of available information, including comparing credit ratings of issuers and credit opinion reports from the credit rating agencies. As a result, the interest rate of the Medium Term Notes and the OEFC debt is comparable.

For the OEFC debt, the interest is based on the prevailing benchmark Government of Canada bond for the corresponding term of the debt, as published by a verifiable market monitoring service on the day prior to the date funds are advanced, plus a credit margin determined five business days before the date funds are advanced. The credit margin is determined based on a sample of quotes for OPG's credit margin as provided by a selected group of Canadian banks.[4] Similarly, the interest rate for the Medium Term Notes is based on the benchmark Government of Canada bond rate plus the credit spread set by the capital market at the time the note is offered to investors.

The cost of planned new and refinanced corporate debt and project-related debt for 2020 to 2026 is based on a forecast of the 10-year Long Canada Bond published in September 2020 by Global Insight, a third party independent market source, as shown in Chart 1.

Chart 1:
Forecast 10-year Long Canada Bond Rates (%)

Year	Q1	Q2	Q3	Q4
2021	0.64	0.71	0.79	0.88
2022	0.95	1.03	1.1	1.16
2023	1.21	1.22	1.24	1.27
2024	1.3	1.36	1.41	1.47
2025	1.53	1.6	1.66	1.72
2026	1.79	1.86	1.92	1.99

[4] The credit margin will be the same for corporate and project-related debt as the credit margin evaluates OPG as a borrowing entity rather than a particular project.

OPG's credit spread at September 30, 2020 was 148 basis points. This spread has been added to the Global Insight rates noted in Chart 1 to determine the forecast rate for OPG's planned debt in 2021-2026, as shown in Chart 2.[5]

Chart 2:

Forecast 10-year Long Canada Bond Rates Plus Credit Risk Spread (%)

Year	Q1	Q2	Q3	Q4
2021	2.12	2.19	2.27	2.36
2022	2.43	2.51	2.58	2.64
2023	2.69	2.70	2.72	2.75
2024	2.78	2.84	2.89	2.95
2025	3.01	3.08	3.14	3.20
2026	3.27	3.34	3.40	3.47

4.3 Planned Long-Term Debt Issues

The total amounts of planned debt issues (total corporate and prescribed facilities projected-related) are listed in Ex. C1-1-2, Table 7a (2021), Table 8a (2022), Table 9a (2023), Table 10a (2024), Table 11a (2025), and Table 12a (2026). Maturing and new debt issues (total corporate and Niagara Tunnel) are summarized in Chart 3 below.

Chart 3:

Long-Term Debt Retirements and Planned Issues ($M)

	2021	2022	2023	2024	2025	2026	Total
Debt Issues Maturing	$185	$175	$40	$400	$0	$50	$850
Planned New Debt Issues	$200	$550	$75	$0	$0	$0	$825

[5] There are no remaining forecasted debt issues in 2020. Ex. C1-1-2, Tables 6 and 6a reflect actual issues during the year.

Included in the planned new debt issues above is $100M of debt attributed to the Sir Adam Beck I Hydroelectric GS Units G1 and G2 Replacement project, which is directly assigned to the regulated operations in the calculation of the long-term debt cost. OPG expects to issue Green Bonds in 2022 toward this project.

5.0 OTHER LONG-TERM DEBT

As discussed above, OPG finances long-term assets with long-term financing. Consistent with the methodology approved in prior OPG proceedings, OPG has used a provision for long-term debt to reconcile the debt component of its regulated capital structure with the proposed rate base that financing supports. OPG's other long-term debt provision is determined based on the following approach:

- The total debt for regulated operations is determined by applying OPG's proposed capital structure to its proposed regulated rate base.
- The actual and projected project-related and corporate long-term debt assigned or allocated to OPG's regulated operations is deducted.
- The actual and projected portion of short-term debt allocated to regulated operations is deducted. This calculation is described in Ex. C1-1-3.
- The result is the residual long-term debt.

Consistent with prior OPG proceedings, OPG has applied the rate for its existing and planned long-term debt to the other long term debt provision.