DRIVERS OF DEFICIENCY – REGULATED HYDROELECTRIC

1.0 PURPOSE

This evidence presents the major drivers of revenue deficiency for the regulated hydroelectric facilities in 2027 as set out in Ex. I1-1-1, Table 3a.

2.0 OVERVIEW

The revenue deficiency for the regulated hydroelectric facilities in 2027 is primarily driven by higher base OM&A costs due to higher staffing levels to support expanded work programs (Ex. F1-2-1), higher Project OM&A expenditures related to addressing aging assets (as discussed in Ex. F1-3-1), increased cost of capital and depreciation associated with incremental rate base additions (Ex. D1-1-2), and lower income tax expense (Ex. F4-2-1).

The annual revenue deficiency impact of revenue requirement drivers is detailed in Chart 1 and explained in Section 3.0 below.

To determine the revenue deficiency for the regulated hydroelectric facilities, OPG calculated an indicated production revenue for 2027 by multiplying the production forecast in 2027 by the 2026 regulated hydroelectric payment amount resulting from the OEB-approved payment amount in EB-2020-0290. Comparing the indicated production revenue to the annual revenue requirement proposed in this Application shows a revenue deficiency of $243.9M.[1] As the OEB has not approved a revenue requirement for the regulated hydroelectric facilities since EB-2013-0321, it was necessary for OPG to calculate an implied 2026 revenue requirement by cost component. This calculation begins with the EB-2013-0321 approved revenue requirement by cost component (EB-2013-0321, Payment Amounts Order, App. A, Table 1 and EB 2013-0321, Payment Amounts Order, App. A, Table 2) and adjusting income taxes per EB-2016-0152 (Ex. I1-2-1, Table 2). These components were then adjusted by the approved annual adjustments to the payment amounts[2] in the 2017-2021 period. Under O. Reg. 53/05

[1] Chart 1, Line 11.
[2] The OEB approved I-X rates of 1.4% in 2017, 0.9% in 2018, 1.1% in 2019, 1.5% in 2020, and 1.7% in 2021.

section 6(2)13, the OEB-approved 2021 regulated hydroelectric payment amount was then held constant over the 2022-2026 period.

3.0 DRIVERS OF DEFICIENCY FOR THE REGULATED HYDROELECTRIC FACILITIES

3.1 Capital Investments (+60% of revenue deficiency)

The combined impact of return on capital and depreciation from capital investments included in the opening 2027 rate base—when compared to the escalated rate base values approved by the OEB in EB-2013-0321—along with the increase in 2027 capital investments, totals $146.9M. The increase is driven by significant investment made to the regulated hydroelectric aging fleet since EB-2013-0321 to ensure continued safe and effective operations over this period. This includes executing major turbine-generator refurbishments to maintain reliability, redeveloping facilities where appropriate, and undertaking concrete and dam restoration and rehabilitation and other civil infrastructure projects. Refer to Ex. B1-1-1 and Ex. D1-1-2 for further discussion.

3.2 OM&A (+57% of revenue deficiency)

OM&A increases by $140.2M in 2027 reflecting higher Base OM&A costs due to deferred planned maintenance, increased labour costs resulting from *Protecting a Sustainable Public Sector for Future Generations Act, 2019* (Bill 124), and increased resourcing to support the growing work program and regulated hydroelectric project portfolio (Ex. F1-2-1 and Ex. F1-2-2). Project OM&A expenditures are also forecasted to be higher in 2027 primarily relating to overhauls, rehabilitation projects, and concrete repair and restoration projects (Ex. F1-3-1 and Ex. F1-3-2).

3.3 Income Tax Expense (offsets revenue deficiency by 24%)

Income Tax expense decreases in 2027 driven by lower regulatory earnings before tax, along with higher capital cost allowance, reflecting the increase in investments to refresh OPG's regulated hydroelectric fleet (Ex. F4-2-1). The decrease in income taxes offset the total revenue deficiency by $58.5M.

3.4 Ancillary Revenue and Other (+12% of revenue deficiency)

The forecast of Other Revenues is included as an offset in the calculation of OPG's 2027 revenue requirement for the regulated hydroelectric facilities (Ex. G1-1-1). Period over period historical changes including changes in the 2027 test year are outlined in Ex. G1-1-2. The decrease in Ancillary Revenue and Other is influenced by lower average price spreads impacting Hydroelectric Incentive Mechanism Revenue and lower Ancillary Revenue including Segregated Mode of Operation, Operating Reserve Revenue, Installed Capacity market transactions, and Water Transfer agreements between OPG and the New York Power Authority.

3.5 Gross Revenue Charge ("GRC") (offsets revenue deficiency by 9%)

The GRC is directly dependent on energy production and variances result from production impacts (primarily unit outages, water conditions, and market conditions, see Ex. E1-1-1 and Ex. E1-1-2). The production forecast is inclusive of outages to accommodate the ongoing refurbishment program and other life extension activities across the fleet, and also reflects anticipated energy increases from the refurbishment and redevelopment projects. Variances in GRC for the historical period (2016-2024), bridge period (2025-2026), and test year (2027) are outlined in Ex. F1-4-2. The decrease in GRC costs in the 2027 revenue requirement offset the total revenue deficiency by $22.5M.

3.6 Production (+3% of revenue deficiency)

Production in 2027 of 32.5 TWh is forecasted to decrease by 0.1 TWh relative to the production used in the calculation underpinning the 2026 regulated hydroelectric payment amount. Regulated hydroelectric production is impacted primarily by water availability, unit availability, or a combination thereof. As detailed in Ex. E1-1-1, changes in forecast 2027 production are mainly due to forecast outage differences in forecast production differences expected from refurbishment and redevelopment projects. Refer to Ex. E2-1-2 for further discussion.

Chart 1: Hydroelectric Deficiency for 2027

Line No		($M) 2027	Reference
1	**EB-2020-0290 Approved 2026 Revenue Requirement**	**1,430.7**	Note 1a
2	Revenue at EB-2020-0290_2026 Payment Amount ($43.88/MWh)	**1,424.4**	Note 2a
3	Lower Production (line 1 - line 2)	**6.3**	
	Changes in Revenue Requirement:		
4	OM&A	140.2	Note 3a
5	Capital Investments	146.9	Note 4a
6	Ancillary Revenue and Other	29.9	Note 5a
7	Income Tax	(58.5)	Note 6a
8	GRC	(22.5)	Note 7a
9	Other	1.7	Note 8a
10	**Total Change in Revenue Requirement** (lines 4 through 9)	**237.7**	
11	**Total Revenue Deficiency** (line 3 + line 10)	**243.9**	

Notes

1a EB-2013-0321 Draft Payment Amounts Order Appendix A, Table 1, (line 24, col. (i) / 2)
Plus: (EB-2013-0321 Draft Payment Amounts Order Appendix A, Table 2, (line 24, col. (c) / 2) plus
EB-2013-0321 Draft Payment Amounts Order Appendix A, Table 2, line 24, col (f))) /18 * 12

2a

REDUCED PRODUCTION	2027
Test Period Production (Ex. E1-1-1 Table 1, line 4, col. (l)) **(TWh)**	32.5
Hydroelectric Base Payment Amount (Ex. I1-1-2 Table 2, line 1, col. (a)) **($/MWh)**	$43.88
Forecast Revenue ($M)	1,424.4

Note	Driver of Revenue Requirement Change	EB-2025-0297	EB-2013-0321 (references shown are to EB-2013-0321 exhibits except where noted)
3a	**OM&A**	EB-2025 Ex. I1-1-1 Table 1 line 13, col .(a)	EB-2013-0321 Draft Payment Amounts Order Appendix A, Table 1, (line 15, col (i) / 2) Plus: [EB-2013-0321 Draft Payment Amounts Order Appendix A, Table 2, (line 15, col (c) / 2) plus EB-2013-0321 Draft Payment Amounts Order Appendix A, Table 2, line 15, col (f)] /18 * 12) Multplied by: (1+ EB-2016-0152 Final Draft Payment Amounts Order, Appendix B, Table 1, (line 4, col. (a) Multplied by: (1+ EB-2016-0152 Final Draft Payment Amounts Order, Appendix B, Table 1, (line 4, col. (b) Multplied by: (1+ EB-2018-0243, Page 3: 1.1%) Multplied by: (1+ EB-2019-0209, Page 3: 1.5%) Multplied by: (1+ EB-2020-0210, Page 3: 1.7%)
4a	**Capital Investments**	Ex. I1-1-1 Table 1 line 15, col .(a) plus EB-2025 Ex. I1-1-1 Table 1 line 12, col .(a)	EB-2013-0321 Draft Payment Amounts Order Appendix A, Table 1, ((line 14 + line 17), col (i) / 2) Plus: [EB-2013-0321 Draft Payment Amounts Order Appendix A, Table 2, (line 14 + line 17) , col (c) / 2) plus EB-2013-0321 Draft Payment Amounts Order Appendix A, Table 2, (line 14 + line 17), col (f)] /18 * 12) Multiplied by: (1+ EB-2016-0152 Final Draft Payment Amounts Order, Appendix B, Table 1, (line 4, col. (a) Multiplied by: (1+ EB-2016-0152 Final Draft Payment Amounts Order, Appendix B, Table 1, (line 4, col. (b) Multiplied by: (1+ EB-2018-0243, Page 3: 1.1%) Multiplied by: (1+ EB-2019-0209, Page 3: 1.5%) Multiplied by: (1+ EB-2020-0210, Page 3: 1.7%)
5a	**Ancillary Revenue and Other**	Ex. I1-1-1 Table 1 line 18, col .(a)	EB-2013-0321 Draft Payment Amounts Order Appendix A, Table 1, (line 21, col (i) / 2) Plus: [EB-2013-0321 Draft Payment Amounts Order Appendix A, Table 2, (line 21, col (c) / 2) + EB-2013-0321 Draft Payment Amounts Order Appendix A, Table 2, line 21, col (f)] /18 * 12) Multiplied by: (1+ EB-2016-0152 Final Draft Payment Amounts Order, Appendix B, Table 1, (line 4, col. (a) Multiplied by: (1+ EB-2016-0152 Final Draft Payment Amounts Order, Appendix B, Table 1, (line 4, col. (b) Multiplied by: (1+ EB-2018-0243, Page 3: 1.1%) Multiplied by: (1+ EB-2019-0209, Page 3: 1.5%) Multiplied by: (1+ EB-2020-0210, Page 3: 1.7%)
6a	**Income Tax**	Ex. I1-1-1 Table 1 line 20, col .(a)	EB-2013-0321 Draft Payment Amounts Order Appendix A, Table 1, (line 23, col (i) / 2) Plus: [EB-2013-0321 Draft Payment Amounts Order Appendix A, Table 2, (line 23, col (c) / 2) + EB-2013-0321 Draft Payment Amounts Order Appendix A, Table 2, line 23, col (f)] /18 * 12) Plus: (EB2016-0152 (Ex. I1-2-1, Table 2, line 1 (col. b) / 2) plus (EB2016-0152 (Ex. I1-2-1, Table 2, line 4 (col. b) / 18 * 12) Multiplied by: (1+ EB-2016-0152 Final Draft Payment Amounts Order, Appendix B, Table 1, (line 4, col. (a))) Multiplied by: (1+ EB-2016-0152 Final Draft Payment Amounts Order, Appendix B, Table 1, (line 4, col. (b))) Multiplied by: (1+ EB-2018-0243, Page 3: 1.1%) Multiplied by: (1+ EB-2019-0209, Page 3: 1.5%) Multiplied by: (1+ EB-2020-0210, Page 3: 1.7%)
7a	**GRC**	Ex. I1-1-1 Table 1 line 14, col .(a)	EB-2013-0321 Draft Payment Amounts Order Appendix A, Table 1, (line 16, col (i) / 2) Plus: [EB-2013-0321 Draft Payment Amounts Order Appendix A, Table 2, (line 16, col (c) / 2) plus EB-2013-0321 Draft Payment Amounts Order Appendix A, Table 2, line 16, col (f)] /18 * 12) Multiplied by: (1+ EB-2016-0152 Final Draft Payment Amounts Order, Appendix B, Table 1, (line 4, col. (a) Multiplied by: (1+ EB-2016-0152 Final Draft Payment Amounts Order, Appendix B, Table 1, (line 4, col. (b) Multiplied by: (1+ EB-2018-0243, Page 3: 1.1%) Multiplied by: (1+ EB-2019-0209, Page 3: 1.5%) Multiplied by: (1+ EB-2020-0210, Page 3: 1.7%)
8a	**Other**	Ex. I1-1-1 Table 1 line 16, col .(a)	EB-2013-0321 Draft Payment Amounts Order Appendix A, Table 1, (line 18, col (i) / 2) Plus: [EB-2013-0321 Draft Payment Amounts Order Appendix A, Table 2, (line 18, col (c) / 2) + EB-2013-0321 Draft Payment Amounts Order Appendix A, Table 2, line 18, col (f)] /18 * 12) Multiplied by: (1+ EB-2016-0152 Final Draft Payment Amounts Order, Appendix B, Table 1, (line 4, col. (a) Multiplied by: (1+ EB-2016-0152 Final Draft Payment Amounts Order, Appendix B, Table 1, (line 4, col. (b) Multiplied by: (1+ EB-2018-0243, Page 3: 1.1%) Multiplied by: (1+ EB-2019-0209, Page 3: 1.5%) Multiplied by: (1+ EB-2020-0210, Page 3: 1.7%)