SUPPLEMENTAL EVIDENCE: HYDROELECTRIC CAPACITY REFURBISHMENT VARIANCE ACCOUNT

1.0 PURPOSE

This evidence responds to a request from the OEB Panel on Day 15 of the hearing that OPG provide additional evidence on the operation of the Capacity Refurbishment Variance Account ("CRVA") as it relates to regulated hydroelectric operations during the 2017-2021 IR period.[1]

Specifically, the OEB asked OPG to provide:

i. Further information on the Sustaining Capital[2] and CRVA-eligible revenue requirements underpinning the current hydroelectric payment amounts;
ii. A description of OPG's proposal for determining variances to be recorded to the CRVA during the 2017-2021 IR period, including the process by which those amounts would be recorded; and
iii. An illustrative example showing how entries would be made to the CRVA for a hypothetical, CRVA-eligible project during the 2017-2021 period, and how OPG would avoid "double-counting" relative to funding in hydroelectric payment amounts during the 2017-2021 IR period.[3]

2.0 CAPITAL REVENUE REQUIREMENTS UNDERPINNING CURRENT PAYMENT AMOUNTS

The OEB has asked for further information on the capital-related revenue requirements underpinning the current hydroelectric payment amounts. This evidence breaks down the revenue requirements relating to forecast 2014 and 2015 in-service additions (for both CRVA-eligible and Sustaining Capital projects) underpinning the payment amounts approved in EB-2013-0321. These amounts are provided in Ex. H1-1-2 Table 1 and Table 2.

[1] EB-2016-0152, Transcript, Day 15, page 83, lines 15-18.
[2] For the purposes of this schedule, "Sustaining Capital" means all capital projects for the prescribed hydroelectric facilities that are not eligible for inclusion in the CRVA.
[3] EB-2016-0152, Transcript, Day 15, page 84, lines 7-23.

Table 1 provides the revenue requirement impacts of the OEB-approved forecast in-service additions in the approved hydroelectric payment amounts. The revenue requirement impacts of the in-service additions for each of total regulated hydroelectric capital, CRVA eligible projects and Sustaining Capital projects are shown on lines 8, 16, and 24. The values in the "Annual Average" column represent the annualized amounts embedded in the current payment amounts.

Table 2 provides the gross cost of total OEB-approved regulated hydroelectric in service additions (line 3), the accumulated depreciations for these additions (line 6), and the associated average net plant rate base amount (line 9). These amounts are then broken out by CRVA eligible projects and Sustaining Capital projects, with the in-service additions shown for each of these categories on lines 12 and 21.

3.0 MECHANICS OF DETERMINING AND RECORDING AMOUNTS TO THE CRVA

OPG does not propose to alter the types of variances that are recorded to the CRVA during the 2017 to 2021 period in respect of the prescribed hydroelectric facilities, relative to the types of variances it has measured in prior periods. In accordance with O. Reg. 53/05, OPG expects the CRVA would continue to record the revenue requirement variance between (a) the *forecast* capital and non-capital costs and firm financial commitments incurred to increase the output of, refurbish or add operating capacity to a prescribed hydroelectric generating facility underpinning the OEB-approved revenue requirement for CRVA-eligible projects in EB-2013-0321, and (b) such *actual*, prudent capital and non-capital costs and firm financial commitments.

The determination of the variance between items (a) and (b) above can be thought of as the following two separate transactions[4]:

1) Credit Entries for OEB-Approved Amounts: These amounts reflect in-service additions that are funded in the "going in" hydroelectric payment amounts for CRVA-eligible projects. In setting base payment amounts, the OEB approved incremental

[4] Interest recorded and amortization of balances approved for disposition are not considered for the purpose of this evidence as they distinct from the amounts recorded in the account. No changes to the mechanics for interest and amortization entries in the account are anticipated. Amortization amounts will continue to be based on amounts ultimately approved by the OEB for disposition.

depreciation expense, interest cost, return on equity ("ROE"), and income tax expense related to these in-service additions. The CRVA will reflect the fact that those approvals in the revenue requirement will continue to underlie the approved payment amounts, and will credit them back to customers.

2) Debit Entries for OPG Actual Incurred Costs: These amounts will reflect the revenue requirement impact of the costs that OPG actually incurs in relation to CRVA-eligible projects placed in service during the IR period that were not reflected in the "going in" payment amounts. When such a CRVA-eligible project enters service, the actual cost, depreciation rate, and timing of that project in conjunction with the OEB-approved annual interest and ROE rates reflected in the "going in" payment amounts and associated income taxes will be used to determine the revenue requirement impact recorded in the account for future recovery from ratepayers.

The balance of the CRVA account will be the net of the credit for amounts already included in payment amounts (i.e., Entry 1) and the revenue requirement impact of the actual in-service additions for CRVA-eligible projects described above (i.e., Entry 2).

During the hearing of this application, OPG identified an amount of approximately $2M as the total hydroelectric CRVA related revenue requirement for 2014 and 2015 in-service additions.[5] This amount can be found in Table 1 line 16 (columns (a) and (b)). This amount represents the combined revenue requirement impact of 2014 and 2015 forecast in-service additions reflected in the current hydroelectric payment amounts. The annual average of these amounts is approximately $0.9M as identified in line 16, column (c) of Table 1. This annual average is the amount that OPG proposes be used to determine the customer credit entry into the CRVA for CRVA amounts already funded in payment amounts. The revenue requirement impact will continue to reflect an annual $0.9M credit to customers in the CRVA until rebasing.

OPG will continue to record in the CRVA the actual revenue requirement of costs incurred for eligible projects not reflected in the "going in" payment amounts that enter service during the 2017 to 2021 period, as described under Entry 2 above. Since the OEB has not approved any

[5] EB-2016-0152, Transcript, Day 10, page 145, lines 17-20.

CRVA-eligible projects for this period, the base payment amounts include no associated costs, and the full revenue requirement impact of these in service amounts would be recorded in the account. As discussed in section 4.0 below, the ultimate recovery of these amounts would be subject to a test that ensures no 'double recovery' of these amounts through capital-related revenues during the IR period.

4.0 PREVENTING DOUBLE RECOVERY

In principle, OPG understands that rate-setting through a price-cap index decouples payments and costs. As a result, it is not strictly accurate to state that approved payment amounts fund a specific level of capital expenditures during the IRM period. Under this form of incentive rate-setting, a regulated entity retains the discretion to manage its business within the envelope of funding provided, responding to its individual cost pressures and opportunities to make efficiency gains.

However, while O. Reg. 53/05 requires that OPG recover prudently incurred costs associated with CRVA-eligible projects, it does not permit OPG to recover those costs once in base payment amounts and again through disposition of deferral and variance accounts. In that context, OPG acknowledges that it would only be appropriate for it to recover any balance in the CRVA if it can demonstrate that the costs of the projects recorded in the account have not been funded through base payment amounts during the 2017-2021 period.

Therefore, in OPG's submission, it would only be necessary for the OEB to allow recovery of CRVA balances if OPG's total prudent capital spending in the 2017 to 2021 period (i.e., CRVA-eligible and Sustaining Capital projects combined) exceeds the total amount of such capital spending implicitly funded through base payment amounts.

As a practical matter the depreciation expense in base payment amounts represents the source of cash flow that will be available to fund capital expenditures during the 2017 to 2021 period, escalated by the annual price-cap index adjustments approved by the OEB during the term. OPG has calculated the annual total of these amounts, escalated by the proposed 1.5% price-cap index in Table 3 of this schedule. At the production level reflected in approved "going in" payment amounts, these components of the IRM payment amounts would provide approximately $749M in revenues that could be invested in capital over the IR period.

If OPG's total prudent capital in-service additions[6] for the prescribed hydroelectric facilities do not exceed this funded level, OPG would not seek to recover any balance in the CRVA, since the costs of those projects would effectively have been funded through base payment amounts. OPG would only seek to recover amounts recorded in the CRVA to the extent it could demonstrate that, at the end of the IR period, the company's total, prudent in-service capital additions for the prescribed hydroelectric facilities exceeded the implicit capital funding in payment amounts for that period. Following that determination, the CRVA calculation described above would be reset at rebasing.

5.0 ILLUSTRATIVE EXAMPLES

OPG has prepared two illustrative examples to demonstrate how the OEB could confirm that the recovery of balances in the CRVA does not result in OPG "double recovering" the cost of CRVA-eligible projects. The in-service amounts discussed in these examples are illustrative and do not reflect OPG's forecast in-service additions.

Scenario 1 - Overspending on Sustaining Capital

Scenario 1 provides an example where OPG's actual in-service CRVA additions as well as Sustaining Capital exceed the total amount of in-service additions funded through payment amounts over the IR period. Chart 1 below presents such a scenario.

[6] As measured by the combined total of Sustaining and CRVA-eligible projects. The prudence of these expenditures would be determined by the OEB in a subsequent proceeding.

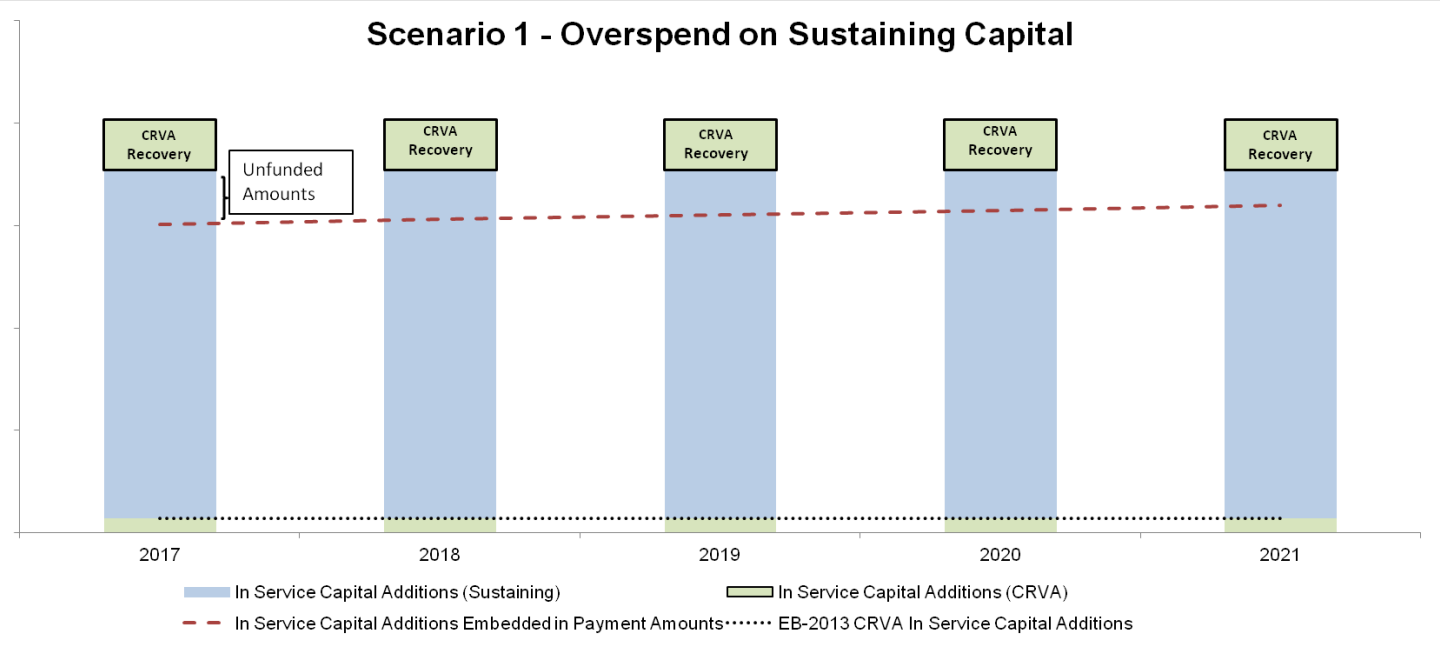

Chart 1
Hydro CRVA Clearance Methodology (Scenario 1: Overspend on Sustaining Capital)

Line No.	Description	2017	2018	2019	2020	2021	Total
		(a)	(b)	(c)	(d)	(e)	(f)
1	Illustrative Actual CRVA-Related In-Service Additions	25.0	25.0	25.0	25.0	25.0	125.0
2	Revenue Requirement Impact of CRVA Related In-Service Additions[1]	1.3	3.8	6.3	8.8	11.3	31.3
3	CRVA amounts in Payment Amount (Credit to CRVA)[2] *(Per EB-2013-0321)*	(0.9)	(0.9)	(0.9)	(0.9)	(0.9)	(4.7)
4	Balance in CRVA Account *(line 2 + line 3)*	0.3	2.8	5.3	7.8	10.3	26.5
CRVA Recoverability Threshold							
5	Total In-Service Additions Funded Through Payment Amounts[3]	145.4	147.6	149.8	152.0	154.3	749.1
6	Illustrative Actual Sustaining-Related In-Service Additions	170.0	170.0	170.0	170.0	170.0	850.0
7	Illustrative Actual CRVA-Related In-Service Additions	25.0	25.0	25.0	25.0	25.0	125.0
8	Total Illustrative In-Service Additions	195.0	195.0	195.0	195.0	195.0	975.0
9	In Service Additions Not Funded Through Rates *(line 8 - line 5)*	49.6	47.4	45.2	43.0	40.7	225.9
10	Revenue Requirement Impact of In Service Additions Not Funded Through Payment Amount[1]	2.5	7.3	12.0	16.4	20.6	58.7
11	Maximum Recoverable CRVA Balance (Lesser of Line 4 and Line 10)[4]						26.5

Notes:
1 Approximate Revenue Requirement Impact of 10%, and assuming 1/2 year rule
2 Revenue Requirement Impact of EB-2013-0321 Average of 2014 and 2015 CRVA In Service Additions (See H1-1-2 Table 1 line 16)
3 H1-1-2 Table 3 Line 1
4 Limited to a credit $4.7M - representing the CRVA related in-service additions funded through rates at line 3

OPG's total in-service additions funded through payment amounts are identified on line 5 of Chart 1 as a total of $749.1M over the 2017-2021 period. The actual Sustaining Capital in-service additions are identified on line 6 as a total of $850M over the 2017-2021 period. The actual CRVA-related in-service additions are provided on line 7 as a total of $125M for an aggregate total of $975M of in-service additions in the period from 2017 to 2021 as shown on line 8.

In this example, both the Sustaining Capital in-service additions and total in-service additions exceed the amount that OPG is funded through payment amounts. To the extent that OPG's Sustaining Capital additions exceeded the implicit funding in approved payment amounts, those amounts would not be funded until rebasing. Line 11 demonstrates that in this case OPG would be able to recover the full balance in the CRVA account from line 4. The CRVA account balance would be equal to the revenue requirement impact of the actual CRVA related in-service additions (line 2) less the revenue requirement impact of CRVA in service additions embedded in OPG's payment amounts (line 3). In this scenario, the maximum recoverable balance would be $26.5M

Scenario 2 – Under Spending on Sustaining Capital

Scenario 2 illustrates a scenario where OPG's actual in-service additions exceed the amount of in-service additions funded through payment amounts, but where the Sustaining Capital-related in-service additions do not exceed the implicit capital funding in payment amounts. Chart 2 below illustrates such a scenario.

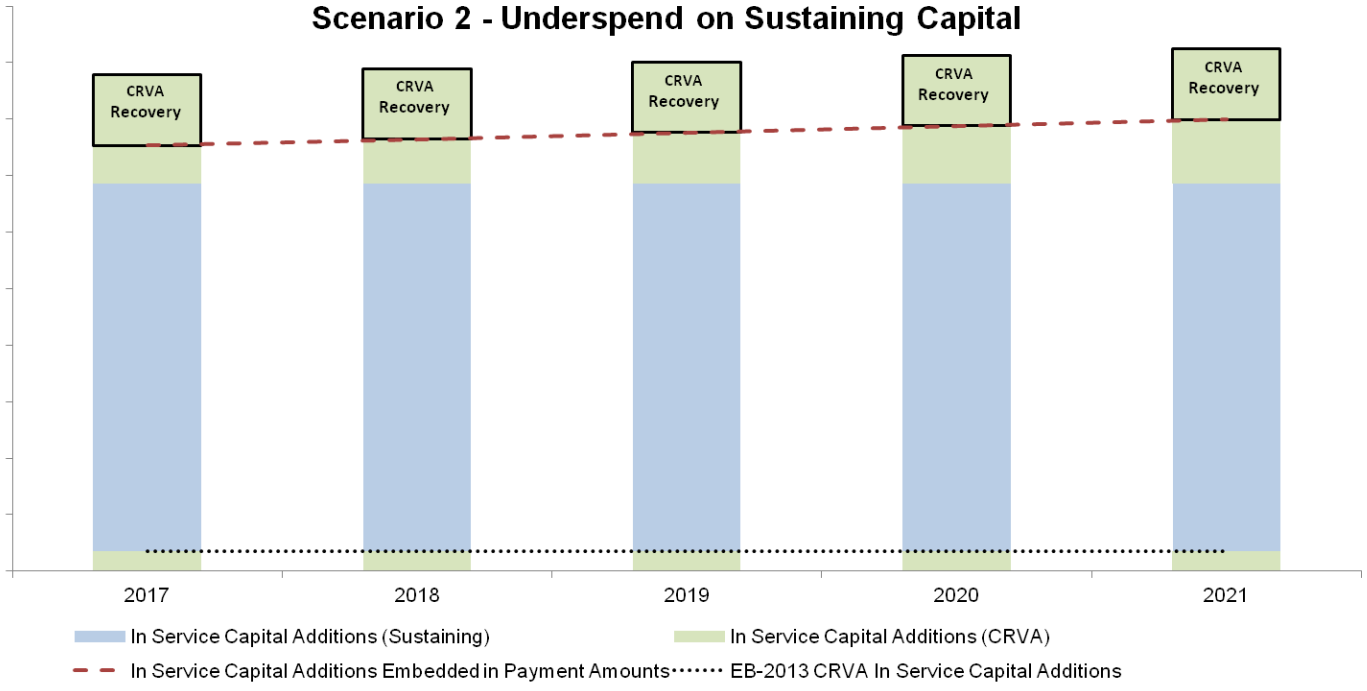

Chart 2
Hydro CRVA Clearance Methodology (Scenario 2: Underspend on Sustaining Capital)

Line No.	Description	2017	2018	2019	2020	2021	Total
		(a)	(b)	(c)	(d)	(e)	(f)
1	Illustrative Actual CRVA-Related In-Service Additions	25.0	25.0	25.0	25.0	25.0	125.0
2	Revenue Requirement Impact of CRVA Related In-Service Additions[1]	1.3	3.8	6.3	8.8	11.3	31.3
3	CRVA amounts in Payment Amount (Credit to CRVA)[2] *(Per EB-2013-0321)*	(0.9)	(0.9)	(0.9)	(0.9)	(0.9)	(4.7)
4	Balance in CRVA Account *(line 2 + line 3)*	0.3	2.8	5.3	7.8	10.3	26.5
CRVA Recoverability Threshold							
5	Total In-Service Additions Funded Through Payment Amounts[3]	145.4	147.6	149.8	152.0	154.3	749.1
6	Illustrative Actual Sustaining-Related In-Service Additions	130.0	130.0	130.0	130.0	130.0	650.0
7	Illustrative Actual CRVA-Related In-Service Additions	25.0	25.0	25.0	25.0	25.0	125.0
8	Total Illustrative In-Service Additions	155.0	155.0	155.0	155.0	155.0	775.0
9	In Service Additions Not Funded Through Rates *(line 8 - line 5)*	9.6	7.4	5.2	3.0	0.7	25.9
10	Revenue Requirement Impact of In Service Additions Not Funded Through Payment Amount[1]	0.5	1.3	2.0	2.4	2.6	8.7
11	Maximum Recoverable CRVA Balance (Lesser of Line 4 and Line 10)[4]						8.7

Notes:
1 Approximate Revenue Requirement Impact of 10%, and assuming 1/2 year rule
2 Revenue Requirement Impact of EB-2013-0321 Average of 2014 and 2015 CRVA In Service Additions (See H1-1-2 Table 1 line 16)
3 H1-1-2 Table 3 Line 1
4 Limited to a credit $4.7M - representing the CRVA related in-service additions funded through rates at line 3

In this example OPG's total in-service additions funded through payment amounts is identified on line 5 of Chart 2 as a total of $749.1M over the 2017-2021 period. The actual Sustaining Capital in-service additions are identified on line 6 as a total of $650M over the 2017-2021 period. The actual CRVA-related in-service additions are provided on line 7 as a total of $125M, for an aggregate total of $775M of in-service additions in the period from 2017 to 2021 as shown on line 8.

In this example, the total in-service additions exceed the amount that OPG is funded through payment amounts. However, the Sustaining Capital in-service additions do not exceed this threshold. Line 11 demonstrates that in this case OPG's recovery of the CRVA account balance would be limited to the revenue requirement impact of the difference between the total illustrative in-service additions and the in-service additions implicitly funded through payment amounts (line 5). In this scenario, the maximum recoverable balance would be $8.7M.

Table 1
Revenue Requirement Impacts - EB-2013-0321 Regulated Hydroelectric Facilities In Service Additions ($M)

Line No.		Reference	2014	2015	Annual Average
	Total Regulated Hydroelectric		(a)	(b)	(c)
1	Net Plant Rate Base	From Table 2, line 9	38.3	143.4	
2	Weighted Average Cost of Capital	Note 1	6.86%	6.85%	
3	Cost of Capital Amount	(line 1 x line 2)	2.6	9.8	6.2
4	Depreciation Expense	From Table 2, line 5	0.9	2.8	1.9
5	Net Increase (Decrease) in Regulatory Taxable Income	Note 2	(4.5)	(12.8)	(8.6)
6	Income Tax Rate		25%	25%	
7	Income Tax Impact	line 5 x line 6 / (1 - line 6)	(1.5)	(4.3)	(2.9)
8	**Total Revenue Requirement - Total Reg. Hyrdoelectric**	line 3 + line 4 + line 7	2.0	8.4	5.2

Line No.		Reference	2014	2015	Annual Average
	CRVA-Eligible Projects		(a)	(b)	(c)
9	Net Plant Rate Base	From Table 2, line 18	2.6	21.4	
10	Weighted Average Cost of Capital	Note 1	6.86%	6.85%	
11	Cost of Capital Amount	(line 11 x line 12)	0.2	1.5	0.8
12	Depreciation Expense	From Table 2, line 14	0.0	0.3	0.2
13	Net Increase (Decrease) in Regulatory Taxable Income	Note 2	(0.0)	(0.3)	(0.2)
14	Income Tax Rate		25%	25%	
15	Income Tax Impact	line 15 x line 16 / (1 - line 16)	(0.0)	(0.1)	(0.1)
16	**Total Revenue Requirement - Total Reg. Hyrdoelectric**	line 13 + line 14 + line 17	0.2	1.7	0.9

Line No.		Reference	2014	2015	Annual Average
	Sustaining Projects		(a)	(b)	(c)
17	Net Plant Rate Base	From Table 2, line 27	35.7	122.0	
18	Weighted Average Cost of Capital	Note 1	6.86%	6.85%	
19	Cost of Capital Amount	(line 21 x line 22)	2.4	8.4	5.4
20	Depreciation Expense	From Table 2, line 23	0.8	2.5	1.7
21	Net Increase (Decrease) in Regulatory Taxable Income	Note 2	(4.5)	(12.4)	(8.5)
22	Income Tax Rate		25%	25%	
23	Income Tax Impact	line 25 x line 26 / (1 - line 26)	(1.5)	(4.1)	(2.8)
24	**Total Revenue Requirement - Total Reg. Hyrdoelectric**	line 23 + line 24 + line 27	1.8	6.7	4.3

Notes

1 2014: EB-2013-0321 Payment Amounts Order Table 5b line 6
2015: EB-2013-0321 Payment Amounts Order Table 6b line 6

2 The decrease in regulatory taxable income is calculated as depreciation expense (lines 4,14, and 22); minus Capital Cost Allowance deduction (CCA); plus the ROE component of the cost of capital at lines 5, 15 and 22. The ROE component is calculated by multiplying the net plant rate base amounts at lines 1, 11 and 19 by the EB-2013-0321 OEB-approved equity portion (45%) of the capital structure, multiplied by the OEB-approved ROE rate of 9.36% and 9.30% in 2014 and 2015, respectively.

Table 2
Impact of EB-2013-0321 Forecast Project In-Service Amounts on Net Plant Rate Base

Line No.		Reference	2014	2015
	Total Regulated Hydroelectric			
1	Gross Plant In-service - Opening Balance		-	77.5
2	Gross Plant In-service - Additions	Note 1	77.5	136.4
3	Gross Plant In-service - Closing Balance	line 1 + line 2	77.5	213.9
4	Accumulated Depreciation - Opening Balance		-	0.9
5	Accumulated Depreciation - Additions	Note 2	0.9	2.8
6	Accumulated Depreciation - Closing Balance	line 4 + line 5	0.9	3.7
7	Net Plant In-service - Opening Balance	line 1 + line 4	-	76.6
8	Net Plant In-service - Closing Balance	line 3 - line 6	76.6	210.2
9	**Net Plant Rate Base - Total Reg. Hydroelectric**		**38.3**	**143.4**

Line No.		Reference	2014	2015
	CRVA-Eligible Projects			
10	Gross Plant In-service - Opening Balance		-	5.3
11	Gross Plant In-service - Additions	Note 1	5.3	32.7
12	Gross Plant In-service - Closing Balance	line 1 + line 2	5.3	38.0
13	Accumulated Depreciation - Opening Balance		-	0.0
14	Accumulated Depreciation - Additions	Note 2	0.0	0.3
15	Accumulated Depreciation - Closing Balance	line 4 + line 5	0.0	0.3
16	Net Plant In-service - Opening Balance	line 1 + line 4	-	5.2
17	Net Plant In-service - Closing Balance	line 3 - line 6	5.2	37.6
18	**Net Plant Rate Base - Total CRVA-Eligible Projects**		**2.6**	**21.4**

Line No.		Reference	2014	2015
	Sustaining Projects			
19	Gross Plant In-service - Opening Balance		-	72.2
20	Gross Plant In-service - Additions	Note 1	72.2	103.7
21	Gross Plant In-service - Closing Balance	line 1 + line 2	72.2	175.9
22	Accumulated Depreciation - Opening Balance		-	0.8
23	Accumulated Depreciation - Additions	Note 2	0.8	2.5
24	Accumulated Depreciation - Closing Balance	line 4 + line 5	0.8	3.4
25	Net Plant In-service - Opening Balance	line 1 + line 4	-	71.4
26	Net Plant In-service - Closing Balance	line 3 - line 6	71.4	172.6
27	**Net Plant Rate Base - Total Sustaining Projects**		**35.7**	**122.0**

Notes
1 OEB-approved in-service additions as shown in EB-2013-0321 Decision with Reasons, page 21.
2 Depreciation amounts underlying EB-2013-0321 Payment Amount Order Table 1 line 1 and Table 2 line 1

Numbers may not add due to rounding.

Table 3
Total Hydroelectric In-Service Additions Funded Through Payment Amounts

Line No.	Description	EB-2013-0321 Average	2017	2018	2019	2020	2021	Total
		(a)	(b)	(c)	(d)	(e)	(f)	(g)
1	Total Funding Available for Capital Expenditures[1,2]	143.3	145.4	147.6	149.8	152.0	154.3	749.1

Notes:
1 Average of 2014 and 2015 OEB Approved depreciation calculated as the sum of EB-2013-0321 Payment Amounts Order Table 1 line 17 columns c and f and Table 2 line 17 columns c and f, divided by two
2 Escalated each year at 1.5% per OPG's proposed I-X formula