

AMPCO Interrogatory #077

Ref: Ontario Power Generation Consolidated Financial Guarantee CMD 12-H11 PAGE 15
(See Attachment 1)

According to the Ontario Power Generation inc's Consolidated Financial Guarantee submitted by CNSC Staff on October 24, 2012, OPG plans to contribute:

- \$193 million in 2013
- \$139 million in 2014
- \$143 million in 2015

Issue Number: 8.1

Issue: Is the revenue requirement methodology for recovering nuclear liabilities in relation to nuclear waste management and decommissioning costs appropriate? If not, what alternative methodology should be considered?

Interrogatory

However according to EB-2013-0321 Exhibit C2 Tab 1 Schedule 1 Table 2 and table 3 line 16, a contribution of \$184 million in 2013. Please provide an explanation regarding the difference of \$9M.

Response

The \$193M amount was based on a preliminary ONFA contribution schedule submitted to the Province based on the approved 2012 ONFA Reference Plan. The \$184M amount is the final amount per the ONFA contribution schedule approved by the Province in December 2012.

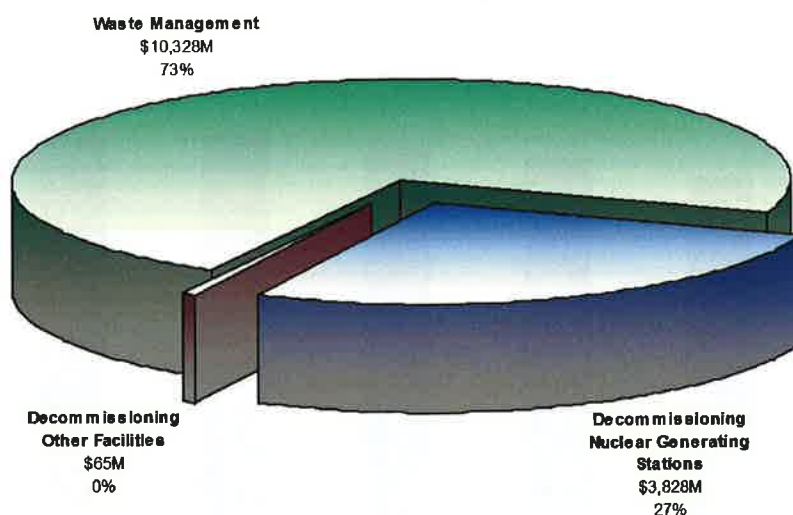
ATTACHMENT 1

Ontario Power Generation Consolidated Financial Guarantee Projections

October 24, 2012

CNSC Staff

BREAKDOWN BY ACTIVITY



2013 - 2017 Cost Estimate Summary

For the period following 2013 through to 2017, the following table presents the projected financial guarantee requirement along with OPG's annual contributions to the ONFA/NFWA trust funds, the accumulated projected value in the ONFA/NFWA trust funds and the Provincial Guarantee requirement.

2013 - 2017 FINANCIAL GUARANTEE PROJECTIONS

Year (January 1 st)	Financial Guarantee Requirement \$ M	OPG Contribution to ONFA/NFWA \$ M	ONFA/NFWA Trust Value* \$ M	Provincial Guarantee Requirement \$ M
2013	14,221	193	12,686	1,535
2014	14,903	139	13,439	1,463
2015	15,434	143	14,018	1,415
2016	15,879	150	14,563	1,316
2017	16,313	163	15,050	1,263

* includes fund growth assumptions

As illustrated below, the total financial guarantee requirement will increase from \$14,221 M in 2013 to \$16,313 M in 2017. However, over the same period the Provincial Guarantee requirement will reduce from \$1,535 M to \$1,263 M.

AMPCO Interrogatory #078

Ref: C2-T1-S1 Table 2

Issue Number: 8.1

Issue: Is the revenue requirement methodology for recovering nuclear liabilities in relation to nuclear waste management and decommissioning costs appropriate? If not, what alternative methodology should be considered?

Interrogatory

Disbursements of funds are allowed to address cost for long term programs such as used fuel disposal, L&ILW disposal and decommissioning. In Ex. C2-1-1, Table 2 and table 3, a disbursement of \$62.6M in 2014 and \$116.5M in 2015 for the prescribed facilities and \$50.1M in 2014 and \$89.3M in 2015 for the Bruce facilities. Please break down actual, budget, and plan disbursements by Decommissioning and Waste Management program and Facility.

a) Please fill table provided below.

b) Please explain the increase in disbursements from Nuclear Segregated Funds in 2015?

Table 3					
Prescribed Facility - Disbursements - Nuclear Segregated Funds (\$M)					
Line No.		Pickering A	Pickering B	Darlington	Total
		(a)	(b)	(d)	(e)
	December 31, 2010 Actual				
1	Decommissioning Program				
2	Low and Intermediate Level Waste Storage Program				
3	Lower and Intermediate Level Waste Disposal Program				
4	Used Fuel Disposal Program				
5	Used Fuel Storage Program				
6	Total				(61.8)
	December 31, 2011 Actual				
7	Decommissioning Program				
8	Low and Intermediate Level Waste Storage Program				
9	Lower and Intermediate Level Waste Disposal Program				
10	Used Fuel Disposal Program				
11	Used Fuel Storage Program				
12	Total				(35.3)
	December 31, 2012 Actual				
13	Decommissioning Program				
14	Low and Intermediate Level Waste Storage Program				
15	Lower and Intermediate Level Waste Disposal Program				
16	Used Fuel Disposal Program				
17	Used Fuel Storage Program				
18	Total				(41.6)
	December 31, 2013 Actual				
19	Decommissioning Program				
20	Low and Intermediate Level Waste Storage Program				
21	Lower and Intermediate Level Waste Disposal Program				
22	Used Fuel Disposal Program				
23	Used Fuel Storage Program				
24	Total				
	December 31, 2014 Plan				
25	Decommissioning Program				
26	Low and Intermediate Level Waste Storage Program				
27	Lower and Intermediate Level Waste Disposal Program				
28	Used Fuel Disposal Program				
29	Used Fuel Storage Program				
30	Total				(62.6)
	December 31, 2015 Plan				
31	Decommissioning Program				
32	Low and Intermediate Level Waste Storage Program				
33	Lower and Intermediate Level Waste Disposal Program				
34	Used Fuel Disposal Program				
35	Used Fuel Storage Program				
36	Total				(116.5)

1
 2

Table 4
Bruce Facility - Disbursements - Nuclear Segregated Funds (\$M)

Line No.		Bruce A	Bruce B	Total
		(a)	(b)	(e)
	December 31, 2010 Actual			
1	Decommissioning Program			
2	Low and Intermediate Level Waste Storage Program			
3	Lower and Intermediate Level Waste Disposal Program			
4	Used Fuel Disposal Program			
5	Used Fuel Storage Program			
6	Total			(38.2)
	December 31, 2011 Actual			
7	Decommissioning Program			
8	Low and Intermediate Level Waste Storage Program			
9	Lower and Intermediate Level Waste Disposal Program			
10	Used Fuel Disposal Program			
11	Used Fuel Storage Program			
12	Total			(24.0)
	December 31, 2012 Actual			
13	Decommissioning Program			
14	Low and Intermediate Level Waste Storage Program			
15	Lower and Intermediate Level Waste Disposal Program			
16	Used Fuel Disposal Program			
17	Used Fuel Storage Program			
18	Total			(28.1)
	December 31, 2013 Actual			
19	Decommissioning Program			
20	Low and Intermediate Level Waste Storage Program			
21	Lower and Intermediate Level Waste Disposal Program			
22	Used Fuel Disposal Program			
23	Used Fuel Storage Program			
24	Total			
	December 31, 2014 Plan			
25	Decommissioning Program			
26	Low and Intermediate Level Waste Storage Program			
27	Lower and Intermediate Level Waste Disposal Program			
28	Used Fuel Disposal Program			
29	Used Fuel Storage Program			
30	Total			(50.1)
	December 31, 2015 Plan			
31	Decommissioning Program			
32	Low and Intermediate Level Waste Storage Program			
33	Lower and Intermediate Level Waste Disposal Program			
34	Used Fuel Disposal Program			
35	Used Fuel Storage Program			
36	Total			(89.3)

1 **Response**

2
3 a) Completed tables are provided below. Refer to Ex. L-08.1-2 AMPCO-082 for an explanation
4 of the funding boundary of the ONFA segregated funds.

5
6 For the reasons discussed in Ex. L-02.1-2 AMPCO-11, OPG continues to calculate nuclear
7 liabilities and depreciation and amortization expenses separately for Pickering Units 1 and 4
8 and Pickering Units 5 - 8.

9
10 b) The referenced increase is mainly due to an increase in planned expenditures for the Low
11 and Intermediate Level Disposal Program and the Used Fuel Disposal Program.

Table 3					
Prescribed Facility - Disbursements - Nuclear Segregated Funds (\$M)					
Line No.	Description	Pickering Units 1 & 4	Pickering Units 5-8	Darlington	Total
		(a)	(b)	(c)	(d)
	December 31, 2010 Actual				
1	Decommissioning Program	(17.4)	(11.2)	(4.5)	(33.2)
2	Low and Intermediate Level Waste Storage Program	0.0	0.0	0.0	0.0
3	Low and Intermediate Level Waste Disposal Program	(8.4)	(5.5)	(2.2)	(16.1)
4	Used Fuel Disposal Program	(3.5)	(3.5)	(5.5)	(12.5)
5	Used Fuel Storage Program	0.0	0.0	0.0	0.0
6	Total	(29.3)	(20.2)	(12.2)	(61.8)
	December 31, 2011 Actual				
7	Decommissioning Program	(0.7)	(0.6)	(0.2)	(1.5)
8	Low and Intermediate Level Waste Storage Program	0.0	0.0	0.0	0.0
9	Low and Intermediate Level Waste Disposal Program	(10.1)	(8.4)	(2.6)	(21.2)
10	Used Fuel Disposal Program	(3.5)	(3.5)	(5.5)	(12.6)
11	Used Fuel Storage Program	0.0	0.0	0.0	0.0
12	Total	(14.4)	(12.6)	(8.3)	(35.3)
	December 31, 2012 Actual				
13	Decommissioning Program	(4.5)	(2.5)	(2.0)	(9.0)
14	Low and Intermediate Level Waste Storage Program	0.0	0.0	0.0	0.0
15	Low and Intermediate Level Waste Disposal Program	(8.6)	(4.7)	(3.8)	(17.1)
16	Used Fuel Disposal Program	(2.7)	(3.2)	(9.6)	(15.5)
17	Used Fuel Storage Program	0.0	0.0	0.0	0.0
18	Total	(15.8)	(10.4)	(15.4)	(41.6)
	December 31, 2013 Actual				
19	Decommissioning Program	(3.3)	(1.4)	(1.1)	(5.7)
20	Low and Intermediate Level Waste Storage Program	0.0	0.0	0.0	0.0
21	Low and Intermediate Level Waste Disposal Program	(10.0)	(4.2)	(3.4)	(17.6)
22	Used Fuel Disposal Program	(3.8)	(4.4)	(13.1)	(21.3)
23	Used Fuel Storage Program	0.0	0.0	0.0	0.0
24	Total	(17.0)	(10.0)	(17.7)	(44.7)
	December 31, 2014 Plan				
25	Decommissioning Program	(2.8)	(2.2)	(1.8)	(6.9)
26	Low and Intermediate Level Waste Storage Program	0.0	0.0	0.0	0.0
27	Low and Intermediate Level Waste Disposal Program	(7.8)	(6.2)	(4.9)	(18.9)
28	Used Fuel Disposal Program	(6.5)	(7.7)	(22.7)	(36.9)
29	Used Fuel Storage Program	0.0	0.0	0.0	0.0
30	Total	(17.2)	(16.0)	(29.4)	(62.6)
	December 31, 2015 Plan				
31	Decommissioning Program	(3.3)	(2.6)	(2.1)	(8.0)
32	Low and Intermediate Level Waste Storage Program	0.0	0.0	0.0	0.0
33	Low and Intermediate Level Waste Disposal Program	(21.9)	(17.2)	(13.8)	(52.8)
34	Used Fuel Disposal Program	(9.8)	(11.6)	(34.3)	(55.7)
35	Used Fuel Storage Program	0.0	0.0	0.0	0.0
36	Total	(35.0)	(31.3)	(50.2)	(116.5)

Table 4				
Bruce Facility - Disbursements - Nuclear Segregated Funds (\$M)				
Line No.	Description	Bruce A	Bruce B	Total
		(a)	(b)	(c)
	December 31, 2010 Actual			
1	Decommissioning Program	(12.4)	(4.2)	(16.6)
2	Low and Intermediate Level Waste Storage Program	0.0	0.0	0.0
3	Low and Intermediate Level Waste Disposal Program	(6.0)	(2.0)	(8.0)
4	Used Fuel Disposal Program	(8.3)	(5.3)	(13.6)
5	Used Fuel Storage Program	0.0	0.0	0.0
6	Total	(26.8)	(11.5)	(38.2)
	December 31, 2011 Actual			
7	Decommissioning Program	(0.5)	(0.2)	(0.7)
8	Low and Intermediate Level Waste Storage Program	0.0	0.0	0.0
9	Low and Intermediate Level Waste Disposal Program	(7.2)	(2.4)	(9.6)
10	Used Fuel Disposal Program	(8.4)	(5.3)	(13.7)
11	Used Fuel Storage Program	0.0	0.0	0.0
12	Total	(16.1)	(7.9)	(24.0)
	December 31, 2012 Actual			
13	Decommissioning Program	(3.9)	(0.8)	(4.7)
14	Low and Intermediate Level Waste Storage Program	0.0	0.0	0.0
15	Low and Intermediate Level Waste Disposal Program	(7.4)	(1.5)	(9.0)
16	Used Fuel Disposal Program	(8.7)	(5.7)	(14.4)
17	Used Fuel Storage Program	0.0	0.0	0.0
18	Total	(20.0)	(8.1)	(28.1)
	December 31, 2013 Actual			
19	Decommissioning Program	(2.2)	(0.5)	(2.6)
20	Low and Intermediate Level Waste Storage Program	0.0	0.0	0.0
21	Low and Intermediate Level Waste Disposal Program	(6.6)	(1.4)	(8.0)
22	Used Fuel Disposal Program	(11.9)	(7.9)	(19.8)
23	Used Fuel Storage Program	0.0	0.0	0.0
24	Total	(20.7)	(9.8)	(30.4)
	December 31, 2014 Plan			
25	Decommissioning Program	(3.5)	(0.7)	(4.2)
26	Low and Intermediate Level Waste Storage Program	0.0	0.0	0.0
27	Low and Intermediate Level Waste Disposal Program	(9.8)	(1.9)	(11.7)
28	Used Fuel Disposal Program	(20.6)	(13.7)	(34.2)
29	Used Fuel Storage Program	0.0	0.0	0.0
30	Total	(33.9)	(16.2)	(50.1)
	December 31, 2015 Plan			
31	Decommissioning Program	(4.1)	(0.8)	(4.9)
32	Low and Intermediate Level Waste Storage Program	0.0	0.0	0.0
33	Low and Intermediate Level Waste Disposal Program	(27.4)	(5.3)	(32.7)
34	Used Fuel Disposal Program	(31.1)	(20.6)	(51.7)
35	Used Fuel Storage Program	0.0	0.0	0.0
36	Total	(62.6)	(26.7)	(89.3)

AMPCO Interrogatory #079

Ref: C2-T1-S1 Table 2 and Table 3

Issue Number: 8.1

Issue: Is the revenue requirement methodology for recovering nuclear liabilities in relation to nuclear waste management and decommissioning costs appropriate? If not, what alternative methodology should be considered?

Interrogatory

Given ARO, Nuclear Segregated Funds Balance and Asset Retirement Costs are calculated at the Nuclear Station Level. Continuity schedules showing the opening, closing and average balance for the ARO, segregated funds, UNL and ARC are provided in Ex C2-T1-S1 Table 2 (for the prescribed facilities) and Table 3 (for the Bruce facilities). Please provide exact table format (rows 1 to 32 for table 2 and rows 1 to 29 for table 3) at a station level. Please provide Pickering A NGS, Pickering B NGS, and Darlington NGS as well as Bruce A NGS and Bruce B NGS separately.

Response

Refer to the attached Tables 1 - 5.

Numbers may not calculate due to rounding.

Table 1
Pickering Units 1 & 4 - Asset Retirement Obligation, Nuclear Segregated Funds, and Asset Retirement Costs (\$M)
Years Ending December 31, 2010 to 2015

Line No.	Description	Note	2010 Actual	2011 Actual	2012 Actual	2013 Budget	2014 Plan	2015 Plan
			(a)	(b)	(c)	(d)	(e)	(f)
	ASSET RETIREMENT OBLIGATION							
1	Opening Balance		1,861.8	1,736.0	2,175.9	2,088.2	2,172.5	2,257.8
2	Darlington Refurbishment Adjustment	1	(164.8)	0.0	0.0	0.0	0.0	0.0
3	Adjusted Opening Balance (line 1 + line 2)		1,697.0	1,736.0	2,175.9	2,088.2	2,172.5	2,257.8
4	Used Fuel Storage and Disposal Variable Expenses	2	4.4	5.0	7.6	8.1	8.4	9.7
5	Low & Intermediate Level Waste Management Variable Expenses	3	0.3	0.2	1.0	0.9	0.9	1.5
6	Accretion Expense		94.9	98.3	115.4	113.6	118.1	122.4
7	Expenditures for Used Fuel, Waste Management & Decommissioning		(61.0)	(32.1)	(34.0)	(38.3)	(42.0)	(55.8)
8	Consolidation and Other Adjustments		0.4	0.1	0.3	0.0	0.0	0.0
9	Closing Balance Before Year-End Adjustments (lines 3 through 8)		1,736.0	1,807.5	2,266.2	2,172.5	2,257.8	2,335.6
10	Current Approved ONFA Reference Plan Adjustment	4	0.0	368.4	(178.5)	0.0	0.0	0.0
11	New CNSC Requirements Adjustment	5	0.0	0.0	0.5	0.0	0.0	0.0
12	Closing Balance (line 9 + line 10 + line 11)		1,736.0	2,175.9	2,088.2	2,172.5	2,257.8	2,335.6
13	Average Asset Retirement Obligation ((line 3 + line 9)/2)		1,716.5	1,771.8	2,221.1	2,130.3	2,215.1	2,296.7
	NUCLEAR SEGREGATED FUNDS BALANCE							
14	Opening Balance		1,531.1	1,656.0	1,738.2	1,846.8	1,704.9	1,781.0
15	Earnings (Losses)		123.6	67.0	102.5	89.2	87.5	91.0
16	Contributions		30.6	29.5	21.9	(211.6)	5.7	6.7
17	Disbursements	6	(29.3)	(14.4)	(15.8)	(19.5)	(17.2)	(35.0)
18	Closing Balance (line 14 + line 15 + line 16 + line 17)		1,656.0	1,738.2	1,846.8	1,704.9	1,781.0	1,843.7
19	Average Nuclear Segregated Funds Balance ((line 14 + line 18)/2)		1,593.6	1,697.1	1,792.5	1,775.9	1,742.9	1,812.3
	UNFUNDED NUCLEAR LIABILITY BALANCE (UNL)							
20	Opening Balance (line 3 - line 14)		165.9	80.0	437.7	241.4	467.6	476.8
21	Closing Balance (line 9 - line 18)		80.0	69.3	419.4	467.6	476.8	492.0
22	Average Unfunded Nuclear Liability Balance ((line 20 + line 21)/2)		122.9	74.6	428.5	354.5	472.2	484.4
	ASSET RETIREMENT COSTS (ARC)							
23	Opening Balance		226.8	19.0	385.7	168.7	147.7	126.6
24	Reconciliation Adjustment	7	(40.7)	0.0	0.0	0.0	0.0	0.0
25	Darlington Refurbishment Adjustment	5	(165.7)	0.0	0.0	0.0	0.0	0.0
26	Adjusted Opening Balance (line 23 + line 24 + line 25)		20.4	19.0	385.7	168.7	147.7	126.6
27	Depreciation Expense	8	(1.4)	(1.7)	(38.5)	(21.1)	(21.1)	(21.1)
28	Closing Balance Before Year-End Adjustments (line 26 + line 27)		19.0	17.3	347.1	147.7	126.6	105.5
29	Current Approved ONFA Reference Plan Adjustment	4	0.0	368.4	(178.5)	0.0	0.0	0.0
30	Closing Balance (line 28 + line 29)		19.0	385.7	168.7	147.7	126.6	105.5
31	Average Asset Retirement Costs ((line 26 + line 28)/2)		19.7	18.2	366.4	158.2	137.2	116.0
32	LESSER OF AVERAGE UNL OR ARC (lesser of line 22 or line 31)		19.7	18.2	366.4	158.2	137.2	116.0

Notes:

- Adjustment recorded on January 1, 2010 associated with the changes to the end-of-life date assumptions underlying the ARO calculation, as a result of the approval of the definition phase of the Darlington Refurbishment project.
- 2014 amount is from Ex. L-8.2-1 Staff-181, Chart 3 and 2015 amount is from Ex. L-8.2-1 Staff-181, Chart 4.
- 2014 amount is from Ex. L-8.2-1 Staff-181, Chart 7 and 2015 amount is from Ex. L-8.2-1 Staff-181, Chart 8.
- Adjustments recorded on December 31, 2011 and December 31, 2012, as per Ex. C2-1-1 Table 4, associated with the current approved ONFA Reference Plan effective January 1, 2012.
- Represents implementation, in accordance with GAAP, of new CNSC requirements in 2012 to include certain facilities with Waste Nuclear Substance Licenses not included in the 2012 ONFA Reference Plan due to timing of notification by the CNSC, as explained in Ex. C2-1-1, Table 2, Note 4.
- Amounts in cols. (a)-(c) and (e)-(f) are as shown in Ex. L-8.1-2 AMPCO-78, Table 3 for the corresponding years.
- Adjustment to remove from the ARC continuity amounts reflected in the non-ARC portion of PP&E in rate base. Total rate base is not impacted.
- 2014 and 2015 amounts are from Ex. L-8.2-1 Staff-181, Chart 1.

Numbers may not calculate due to rounding.

Table 2
Pickering Units 5-8 - Asset Retirement Obligation, Nuclear Segregated Funds, and Asset Retirement Costs (\$M)
Years Ending December 31, 2010 to 2015

Line No.	Description	Note	2010 Actual	2011 Actual	2012 Actual	2013 Budget	2014 Plan	2015 Plan
			(a)	(b)	(c)	(d)	(e)	(f)
	ASSET RETIREMENT OBLIGATION							
1	Opening Balance		2,007.3	1,892.2	2,157.7	2,405.1	2,522.4	2,642.6
2	Darlington Refurbishment Adjustment	1	(203.5)	0.0	0.0	0.0	0.0	0.0
3	Adjusted Opening Balance (line 1 + line 2)		1,803.8	1,892.2	2,157.7	2,405.1	2,522.4	2,642.6
4	Used Fuel Storage and Disposal Variable Expenses	2	5.8	6.2	19.6	20.6	21.6	22.1
5	Low & Intermediate Level Waste Management Variable Expenses	3	0.4	0.5	2.0	1.7	1.7	3.0
6	Accretion Expense		103.0	107.9	119.3	129.8	135.8	141.7
7	Expenditures for Used Fuel, Waste Management & Decommissioning		(21.2)	(25.1)	(27.5)	(34.9)	(38.9)	(54.6)
8	Consolidation and Other Adjustments		0.4	0.1	0.3	0.0	0.0	0.0
9	Closing Balance Before Year-End Adjustments (lines 3 through 8)		1,892.2	1,981.8	2,271.4	2,522.4	2,642.6	2,754.8
10	Current Approved ONFA Reference Plan Adjustment	4	0.0	175.9	133.3	0.0	0.0	0.0
11	New CNSC Requirements Adjustment	5	0.0	0.0	0.4	0.0	0.0	0.0
12	Closing Balance (line 9 + line 10 + line 11)		1,892.2	2,157.7	2,405.1	2,522.4	2,642.6	2,754.8
13	Average Asset Retirement Obligation ((line 3 + line 9)/2)		1,848.0	1,937.0	2,214.6	2,463.7	2,582.5	2,698.7
	NUCLEAR SEGREGATED FUNDS BALANCE							
14	Opening Balance		1,559.0	1,724.7	1,831.8	1,972.9	1,965.7	2,056.6
15	Earnings (Losses)		130.4	66.7	112.8	98.9	101.0	105.3
16	Contributions		55.4	53.0	38.7	(94.2)	6.0	7.0
17	Disbursements	6	(20.2)	(12.6)	(10.4)	(11.8)	(16.0)	(31.3)
18	Closing Balance (line 14 + line 15 + line 16 + line 17)		1,724.7	1,831.8	1,972.9	1,965.7	2,056.6	2,137.5
19	Average Nuclear Segregated Funds Balance ((line 14 + line 18)/2)		1,641.8	1,778.2	1,902.3	1,969.3	2,011.1	2,097.1
	UNFUNDED NUCLEAR LIABILITY BALANCE (UNL)							
20	Opening Balance (line 3 - line 14)		244.8	167.5	325.9	432.2	556.7	586.0
21	Closing Balance (line 9 - line 18)		167.5	150.0	298.5	556.7	586.0	617.3
22	Average Unfunded Nuclear Liability Balance ((line 20 + line 21)/2)		206.2	158.8	312.2	494.4	571.3	601.6
	ASSET RETIREMENT COSTS (ARC)							
23	Opening Balance		160.8	(36.9)	148.9	228.0	197.0	166.0
24	Reconciliation Adjustment	7	(7.0)	0.0	0.0	0.0	0.0	0.0
25	Darlington Refurbishment Adjustment	5	(202.9)	0.0	0.0	0.0	0.0	0.0
26	Adjusted Opening Balance (line 23 + line 24 + line 25)		(49.0)	(36.9)	148.9	228.0	197.0	166.0
27	Depreciation Expense	8	12.0	9.9	(54.1)	(31.0)	(31.0)	(31.0)
28	Closing Balance Before Year-End Adjustments (line 26 + line 27)		(36.9)	(27.0)	94.8	197.0	166.0	135.0
29	Current Approved ONFA Reference Plan Adjustment	4	0.0	175.9	133.3	0.0	0.0	0.0
30	Closing Balance (line 28 + line 29)		(36.9)	148.9	228.0	197.0	166.0	135.0
31	Average Asset Retirement Costs ((line 26 + line 28)/2)		(43.0)	(32.0)	121.8	212.5	181.5	150.5
32	LESSER OF AVERAGE UNL OR ARC (lesser of line 22 or line 31)		(43.0)	(32.0)	121.8	212.5	181.5	150.5

Notes:

- 1 Adjustment recorded on January 1, 2010 associated with the changes to the end-of-life date assumptions underlying the ARO calculation, as a result of the approval of the definition phase of the Darlington Refurbishment project.
- 2 2014 amount is from Ex. L-8.2-1 Staff-181, Chart 3 and 2015 amount is from Ex. L-8.2-1 Staff-181, Chart 4.
- 3 2014 amount is from Ex. L-8.2-1 Staff-181, Chart 7 and 2015 amount is from Ex. L-8.2-1 Staff-181, Chart 8.
- 4 Adjustments recorded on December 31, 2011 and December 31, 2012, as per Ex. C2-1-1 Table 4, associated with the current approved ONFA Reference Plan effective January 1, 2012.
- 5 Represents implementation, in accordance with GAAP, of new CNSC requirements in 2012 to include certain facilities with Waste Nuclear Substance Licenses not included in the 2012 ONFA Reference Plan due to timing of notification by the CNSC, as explained in Ex. C2-1-1, Table 2, Note 4.
- 6 Amounts in cols. (a)-(c) and (e)-(f) are as shown in Ex. L-8.1-2 AMPCO-78, Table 3 for the corresponding years.
- 7 Adjustment to remove from the ARC continuity amounts reflected in the non-ARC portion of PP&E in rate base. Total rate base is not impacted.
- 8 2014 and 2015 amounts are from Ex. L-8.2-1 Staff-181, Chart 1.

Numbers may not calculate due to rounding.

Table 3
Darlington - Asset Retirement Obligation, Nuclear Segregated Funds, and Asset Retirement Costs (\$M)
Years Ending December 31, 2010 to 2015

Line No.	Description	Note	2010 Actual	2011 Actual	2012 Actual	2013 Budget	2014 Plan	2015 Plan
			(a)	(b)	(c)	(d)	(e)	(f)
	ASSET RETIREMENT OBLIGATION							
1	Opening Balance		2,522.1	3,546.3	3,602.3	3,540.8	3,705.8	3,871.9
2	Darlington Refurbishment Adjustment	1	865.7	0.0	0.0	0.0	0.0	0.0
3	Adjusted Opening Balance (line 1 + line 2)		3,387.8	3,546.3	3,602.3	3,540.8	3,705.8	3,871.9
4	Used Fuel Storage and Disposal Variable Expenses	2	13.2	14.8	24.7	24.0	26.1	24.8
5	Low & Intermediate Level Waste Management Variable Expenses	3	0.4	0.2	0.8	0.7	0.6	1.0
6	Accretion Expense		184.3	192.8	197.9	198.7	207.3	215.7
7	Expenditures for Used Fuel, Waste Management & Decommissioning		(39.8)	(46.8)	(54.0)	(58.4)	(67.9)	(87.2)
8	Consolidation and Other Adjustments		0.4	0.1	0.4	0.0	0.0	0.0
9	Closing Balance Before Year-End Adjustments (lines 3 through 8)		3,546.3	3,707.4	3,772.1	3,705.8	3,871.9	4,026.2
10	Current Approved ONFA Reference Plan Adjustment	4	0.0	(105.1)	(231.7)	0.0	0.0	0.0
11	New CNSC Requirements Adjustment	5	0.0	0.0	0.4	0.0	0.0	0.0
12	Closing Balance (line 9 + line 10 + line 11)		3,546.3	3,602.3	3,540.8	3,705.8	3,871.9	4,026.2
13	Average Asset Retirement Obligation ((line 3 + line 9)/2)		3,467.1	3,626.9	3,687.2	3,623.3	3,788.8	3,949.1
	NUCLEAR SEGREGATED FUNDS BALANCE							
14	Opening Balance		1,968.5	2,184.2	2,325.3	2,496.8	3,017.2	3,304.9
15	Earnings (Losses)		163.7	87.0	140.4	138.4	158.7	173.0
16	Contributions		64.2	62.5	46.4	403.9	158.4	159.1
17	Disbursements	6	(12.2)	(8.3)	(15.4)	(21.9)	(29.4)	(50.2)
18	Closing Balance (line 14 + line 15 + line 16 + line 17)		2,184.1	2,325.3	2,496.8	3,017.2	3,304.9	3,586.8
19	Average Nuclear Segregated Funds Balance ((line 14 + line 18)/2)		2,076.3	2,254.8	2,411.1	2,757.0	3,161.0	3,445.8
	UNFUNDED NUCLEAR LIABILITY BALANCE (UNL)							
20	Opening Balance (line 3 - line 14)		1,419.3	1,362.1	1,277.0	1,044.0	688.6	567.0
21	Closing Balance (line 9 - line 18)		1,362.2	1,382.1	1,275.3	688.6	567.0	439.4
22	Average Unfunded Nuclear Liability Balance ((line 20 + line 21)/2)		1,390.7	1,372.1	1,276.1	866.3	627.8	503.2
	ASSET RETIREMENT COSTS (ARC)							
23	Opening Balance		710.5	1,522.2	1,379.8	1,113.7	1,085.1	1,056.5
24	Reconciliation Adjustment	7	5.0	0.0	0.0			
25	Darlington Refurbishment Adjustment	5	843.7	0.0	0.0	0.0	0.0	0.0
26	Adjusted Opening Balance (line 23 + line 24 + line 25)		1,559.1	1,522.2	1,379.8	1,113.6	1,085.1	1,056.5
27	Depreciation Expense	8	(36.9)	(37.2)	(34.4)	(28.6)	(28.6)	(28.6)
28	Closing Balance Before Year-End Adjustments (line 26 + line 27)		1,522.2	1,485.0	1,345.5	1,085.1	1,056.5	1,028.0
29	Current Approved ONFA Reference Plan Adjustment	4	0.0	(105.1)	(231.7)	0.0	0.0	0.0
30	Closing Balance (line 28 + line 29)		1,522.2	1,379.8	1,113.7	1,085.1	1,056.5	1,028.0
31	Average Asset Retirement Costs ((line 26 + line 28)/2)		1,540.6	1,503.6	1,362.6	1,099.4	1,070.8	1,042.2
32	LESSER OF AVERAGE UNL OR ARC (lesser of line 22 or line 31)		1,390.7	1,372.1	1,276.1	866.3	627.8	503.2

Notes:

- Adjustment recorded on January 1, 2010 associated with the changes to the end-of-life date assumptions underlying the ARO calculation, as a result of the approval of the definition phase of the Darlington Refurbishment project.
- 2014 amount is from Ex. L-8.2-1 Staff-181, Chart 3 and 2015 amount is from Ex. L-8.2-1 Staff-181, Chart 4.
- 2014 amount is from Ex. L-8.2-1 Staff-181, Chart 7 and 2015 amount is from Ex. L-8.2-1 Staff-181, Chart 8.
- Adjustments recorded on December 31, 2011 and December 31, 2012, as per Ex. C2-1-1 Table 4, associated with the current approved ONFA Reference Plan effective January 1, 2012.
- Represents implementation, in accordance with GAAP, of new CNSC requirements in 2012 to include certain facilities with Waste Nuclear Substance Licenses not included in the 2012 ONFA Reference Plan due to timing of notification by the CNSC, as explained in Ex. C2-1-1, Table 2, Note 4.
- Amounts in cols. (a)-(c) and (e)-(f) are as shown in Ex. L-8.1-2 AMPCO-78, Table 3 for the corresponding years.
- Adjustment to remove from the ARC continuity amounts reflected in the non-ARC portion of PP&E in rate base. Total rate base is not impacted.
- 2014 and 2015 amounts are from Ex. L-8.2-1 Staff-181, Chart 1.

Numbers may not calculate due to rounding.

Table 4
Bruce A - Asset Retirement Obligation, Nuclear Segregated Funds, and Asset Retirement Costs (\$M)
Years Ending December 31, 2010 to 2015

Line No.	Description	Note	2010 Actual	2011 Actual	2012 Actual	2013 Budget	2014 Plan	2015 Plan
			(a)	(b)	(c)	(d)	(e)	(f)
	ASSET RETIREMENT OBLIGATION							
1	Opening Balance		3,281.5	3,330.2	3,856.2	4,385.6	4,544.7	4,701.6
2	Darlington Refurbishment Adjustment	1	(88.7)	0.0	0.0	0.0	0.0	0.0
3	Adjusted Opening Balance (line 1 + line 2)		3,192.8	3,330.2	3,856.2	4,385.6	4,544.7	4,701.6
4	Used Fuel Storage and Disposal Variable Expenses	2	6.4	15.4	7.1	18.4	19.0	19.7
5	Low & Intermediate Level Waste Management Variable Expenses	3	0.7	0.5	0.9	1.2	1.4	1.9
6	Accretion Expense		169.0	176.3	196.7	217.3	224.7	231.4
7	Expenditures for Used Fuel, Waste Management & Decommissioning		(39.7)	(47.3)	(58.8)	(77.8)	(88.2)	(120.5)
8	Consolidation and Other Adjustments		1.0	(0.5)	0.4	0.0	0.0	0.0
9	Closing Balance Before Year-End Adjustments (lines 3 through 8)		3,330.2	3,474.6	4,002.5	4,544.7	4,701.6	4,834.1
10	Current Approved ONFA Reference Plan Adjustment	4	0.0	381.6	382.2	0.0	0.0	0.0
11	New CNSC Requirements Adjustment	5	0.0	0.0	0.9	0.0	0.0	0.0
12	Closing Balance (line 9 + line 10 + line 11)		3,330.2	3,856.2	4,385.6	4,544.7	4,701.6	4,834.1
13	Average Asset Retirement Obligation ((line 3 + line 9)/2)		3,261.5	3,402.4	3,929.4	4,465.1	4,623.1	4,767.9
	NUCLEAR SEGREGATED FUNDS BALANCE							
14	Opening Balance		3,199.5	3,449.3	3,603.2	3,804.8	3,991.1	4,120.2
15	Earnings (Losses)		253.3	147.8	205.2	195.7	203.6	209.5
16	Contributions		23.2	22.1	16.5	15.6	(40.6)	(40.0)
17	Disbursements	6	(26.8)	(16.1)	(20.0)	(25.0)	(33.9)	(62.6)
18	Closing Balance (line 14 + line 15 + line 16 + line 17)		3,449.3	3,603.2	3,804.8	3,991.1	4,120.2	4,227.1
19	Average Nuclear Segregated Funds Balance ((line 14 + line 18)/2)		3,324.4	3,526.2	3,704.0	3,897.9	4,055.6	4,173.6
	ASSET RETIREMENT COSTS (ARC)							
20	Opening Balance		981.8	846.4	1,196.6	1,540.2	1,497.4	1,454.6
21	Reconciliation Adjustment	7	(0.6)	0.0	0.0	0.0	0.0	0.0
22	Darlington Refurbishment Adjustment	1	(101.1)	0.0	0.0	0.0	0.0	0.0
23	Adjusted Opening Balance (line 20 + line 21 + line 22)		880.0	846.4	1,196.6	1,540.2	1,497.4	1,454.6
24	Depreciation Expense	8	(33.5)	(31.3)	(38.6)	(42.8)	(42.8)	(42.8)
25	Closing Balance Before Year-End Adjustments (line 23 + line 24)		846.4	815.1	1,158.0	1,497.4	1,454.6	1,411.9
26	Current Approved ONFA Reference Plan Adjustment	4	0.0	381.6	382.2	0.0	0.0	0.0
27	New CNSC Requirements Adjustment	5	0.0	0.0	0.0	0.0	0.0	0.0
28	Closing Balance (line 25 + line 26 + line 27)		846.4	1,196.6	1,540.2	1,497.4	1,454.6	1,411.9
29	Average Asset Retirement Costs ((line 23 + line 25)/2))		863.2	830.7	1,177.3	1,518.8	1,476.0	1,433.2

Notes:

- 1 Adjustment recorded on January 1, 2010 associated with the changes to the end-of-life date assumptions underlying the ARO calculation, as a result of the approval of the definition phase of the Darlington Refurbishment project.
- 2 2014 amount is from Ex. L-8.2-1 Staff-181, Chart 5 and 2015 amount is from Ex. L-8.2-1 Staff-181, Chart 6.
- 3 2014 amount is from Ex. L-8.2-1 Staff-181, Chart 9 and 2015 amount is from Ex. L-8.2-1 Staff-181, Chart 10.
- 4 Adjustments recorded on December 31, 2011 and December 31, 2012, as per Ex. C2-1-1 Table 4, associated with the current approved ONFA Reference Plan effective January 1, 2012.
- 5 Represents implementation, in accordance with GAAP, of new CNSC requirements in 2012 to include certain facilities with Waste Nuclear Substance Licenses not included in the 2012 ONFA Reference Plan due to timing of notification by the CNSC, as explained in Ex. C2-1-1, Table 3, Note 4.
- 6 Amounts in cols. (a)-(c) and (e)-(f) are as shown in Ex. L-8.1-2 AMPCO-78, Table 4 for the corresponding years.
- 7 Adjustment to remove from the ARC continuity amounts reflected in the non-ARC portion of PP&E. Total Bruce Lease net revenues are not impacted.
- 8 2014 and 2015 amounts are from Ex. L-8.2-1 Staff-181, Chart 2.

Numbers may not calculate due to rounding.

Table 5
Bruce B - Asset Retirement Obligation, Nuclear Segregated Funds, and Asset Retirement Costs (\$M)
Years Ending December 31, 2010 to 2015

Line No.	Description	Note	2010 Actual	2011 Actual	2012 Actual	2013 Budget	2014 Plan	2015 Plan
			(a)	(b)	(c)	(d)	(e)	(f)
	ASSET RETIREMENT OBLIGATION							
1	Opening Balance		2,033.5	2,026.8	2,251.5	2,739.9	2,890.2	3,044.0
2	Darlington Refurbishment Adjustment		(115.7)	0.0	0.0	0.0	0.0	0.0
3	Adjusted Opening Balance (line 1 + line 2)	1	1,917.9	2,026.8	2,251.5	2,739.9	2,890.2	3,044.0
4	Used Fuel Storage and Disposal Variable Expenses		11.4	11.6	37.4	33.2	35.3	36.8
5	Low & Intermediate Level Waste Management Variable Expenses	2	0.2	0.5	0.9	1.6	1.0	1.8
6	Accretion Expense	3	114.1	120.4	131.1	150.5	158.2	165.9
7	Expenditures for Used Fuel, Waste Management & Decommissioning		(17.7)	(20.8)	(24.9)	(35.0)	(40.7)	(52.1)
8	Consolidation and Other Adjustments		0.9	(0.5)	0.3	0.0	0.0	0.0
9	Closing Balance Before Year-End Adjustments (lines 3 through 8)		2,026.8	2,138.0	2,396.3	2,890.2	3,044.0	3,196.3
10	Current Approved ONFA Reference Plan Adjustment		0.0	113.5	323.9	0.0	0.0	0.0
11	New CNSC Requirements Adjustment	4	0.0	0.0	19.7	0.0	0.0	0.0
12	Closing Balance (line 9 + line 10 + line 11)	5	2,026.8	2,251.5	2,739.9	2,890.2	3,044.0	3,196.3
13	Average Asset Retirement Obligation ((line 3 + line 9)/2)		1,972.3	2,082.4	2,323.9	2,815.0	2,967.1	3,120.1
	NUCLEAR SEGREGATED FUNDS BALANCE							
14	Opening Balance		1,987.7	2,231.5	2,399.3	2,595.3	2,788.5	2,925.1
15	Earnings (Losses)		164.7	92.3	145.7	135.1	143.4	150.2
16	Contributions		90.6	83.4	58.4	70.3	9.4	10.6
17	Disbursements		(11.5)	(7.9)	(8.1)	(12.2)	(16.2)	(26.7)
18	Closing Balance (line 14 + line 15 + line 16 + line 17)	6	2,231.5	2,399.3	2,595.3	2,788.5	2,925.1	3,059.2
19	Average Nuclear Segregated Funds Balance ((line 14 + line 18)/2)		2,109.6	2,315.4	2,497.3	2,691.9	2,856.8	2,992.1
	ASSET RETIREMENT COSTS (ARC)							
20	Opening Balance		53.9	(28.8)	92.2	404.6	346.8	289.0
21	Reconciliation Adjustment		(9.0)	0.0	0.0	0.0	0.0	0.0
22	Darlington Refurbishment Adjustment	7	(81.0)	0.0	0.0	0.0	0.0	0.0
23	Adjusted Opening Balance (line 20 + line 21 + line 22)	1	(36.1)	(28.8)	92.2	404.6	346.8	289.0
24	Depreciation Expense		7.4	7.4	(31.0)	(57.8)	(57.8)	(57.8)
25	Closing Balance Before Year-End Adjustments (line 23 + line 24)	8	(28.8)	(21.3)	61.2	346.8	289.0	231.1
26	Current Approved ONFA Reference Plan Adjustment		0.0	113.5	323.9	0.0	0.0	0.0
27	New CNSC Requirements Adjustment	4	0.0	0.0	19.5	0.0	0.0	0.0
28	Closing Balance (line 25 + line 26 + line 27)	5	(28.8)	92.2	404.6	346.8	289.0	231.1
29	Average Asset Retirement Costs ((line 23 + line 25)/2))		(32.5)	(25.1)	76.7	375.7	317.9	260.0

- Notes:
- 1 Adjustment recorded on January 1, 2010 associated with the changes to the end-of-life date assumptions underlying the ARO calculation, as a result of the approval of the definition phase of the Darlington Refurbishment project.
 - 2 2014 amount is from Ex. L-8.2-1 Staff-181, Chart 5 and 2015 amount is from Ex. L-8.2-1 Staff-181, Chart 6.
 - 3 2014 amount is from Ex. L-8.2-1 Staff-181, Chart 9 and 2015 amount is from Ex. L-8.2-1 Staff-181, Chart 10.
 - 4 Adjustments recorded on December 31, 2011 and December 31, 2012, as per Ex. C2-1-1 Table 4, associated with the current approved ONFA Reference Plan effective January 1, 2012.
 - 5 Represents implementation, in accordance with GAAP, of new CNSC requirements in 2012 to include certain facilities with Waste Nuclear Substance Licenses not included in the 2012 ONFA Reference Plan due to timing of notification by the CNSC, as explained in Ex. C2-1-1, Table 3, Note 4.
 - 6 Amounts in cols. (a)-(c) and (e)-(f) are as shown in Ex. L-8.1-2 AMPCO-78, Table 4 for the corresponding years.
 - 7 Adjustment to remove from the ARC continuity amounts reflected in the non-ARC portion of PP&E. Total Bruce Lease net revenues are not impacted.
 - 8 2014 and 2015 amounts are from Ex. L-8.2-1 Staff-181, Chart 2.

AMPCO Interrogatory #080

Ref: Exhibit 2010-0008 C2-T1-S2

Issue Number: 8.1

Issue: Is the revenue requirement methodology for recovering nuclear liabilities in relation to nuclear waste management and decommissioning costs appropriate? If not, what alternative methodology should be considered?

Interrogatory

A portion of nuclear fuel expense is attributable to the Present value of the variable costs related to incremental quantities of used fuel generated each period. The difference between the lifecycle estimate and the amount of committed costs relating to used fuel included in the nuclear liabilities balance represent the variable costs of future fuel waste. Using present value basis, these variable costs are divided by the forecast number of future fuel bundles to calculate the \$/bundle rate. Used fuel expenses are then calculated by applying the \$/bundle rate to forecast used fuel generation.

- a) Please provide the forecast number of future fuel bundles used to calculate the \$/Bundle rate
- b) Please provide the historical forecasted future fuel bundles and explain variances.

Response

- a) The requested forecast number of future used fuel bundles is 1,609,909.
- b) The requested previous number of forecasted future used fuel bundles used was 1,561,522. The increase over the previous forecast is mainly due to extensions in assumed end-of-life dates of nuclear units and updated production forecasts.

AMPCO Interrogatory #081

Ref:

EB-2010-0008 C2-T2-S2

Issue Number: 8.1

Issue: Is the revenue requirement methodology for recovering nuclear liabilities in relation to nuclear waste management and decommissioning costs appropriate? If not, what alternative methodology should be considered?

Interrogatory

Used Fuel disposal, L&iLW storage and L&iLW disposal programs: as these three programs involve central facilities the cost estimates are prepared at the program level. The costs are allocated to stations based on the most up-to-date lifecycle waste volume estimates

a) For the prescribed nuclear facilities, please provide years ending December 31, 2010, to 2015 lifecycle waste volume at a station level.

b) For the Bruce facilities please provide years ending December 31, 2010, to 2015 lifecycle waste volume at a station level.

Response

a) The requested information is as follows:

	Pickering Units 1 & 4	Pickering Units 5-8	Darlington
As of December 31, 2010:			
Used Fuel Bundles	382,914	387,940	1,291,558
Low Level Waste Stored (m ³)	23,836	23,676	18,049
Intermediate Level Waste Stored (m ³)	4,366	4,173	7,817
As of December 31, 2011:			
Used Fuel Bundles	378,465	376,460	1,283,562
Low Level Waste Stored (m ³)	23,729	24,280	19,975
Intermediate Level Waste Stored (m ³)	5,599	3,023	4,075
As of December 31, 2012 to 2015:			
Used Fuel Bundles	370,203	450,709	1,275,065
Low Level Waste Stored (m ³)	24,628	28,843	19,231
Intermediate Level Waste Stored (m ³)	5,594	3,803	4,508

- b) The requested information is provided below. As low and intermediate level waste volumes are based on forecasts received from Bruce Power, this information is confidential.

	Bruce A	Bruce B
As of December 31, 2010:		
Used Fuel Bundles	1,009,116	655,316
Low Level Waste Stored (m ³)		
Intermediate Level Waste Stored (m ³)		
As of December 31, 2011:		
Used Fuel Bundles	1,053,927	649,629
Low Level Waste Stored (m ³)		
Intermediate Level Waste Stored (m ³)		
As of December 31, 2012 to 2015:		
Used Fuel Bundles	1,182,203	769,974
Low Level Waste Stored (m ³)		
Intermediate Level Waste Stored (m ³)		

OPG notes that that the forecast lifecycle used fuel and low and intermediate level waste volumes reflected in the estimate of OPG's nuclear used fuel and waste management liabilities are updated each time that a change in the estimate of these liabilities occurs. As the last change in the estimate of the liabilities was recognized on December 31, 2012, the same lifecycle volumes are shown in above tables for December 31, 2012 to 2015.

AMPCO Interrogatory #082

Ref:

C2-T1-S1

Issue Number: 8.1

Issue: Is the revenue requirement methodology for recovering nuclear liabilities in relation to nuclear waste management and decommissioning costs appropriate? If not, what alternative methodology should be considered?

Interrogatory

Please review the following and verify if AMPCOs understanding is correct.

The Nuclear Segregated Funds are two Funds which are the Decommissioning Segregated Fund and the Used Fuel Segregated Fund. There exists five Nuclear Decommissioning and Waste Management programs. The Decommissioning program is funded by the Nuclear Decommissioning Fund. The remaining 4 programs are funded by the Used Fuel Segregated Fund. Is this understanding correct? If not please clarify.

Response

No.

In accordance with the Ontario Nuclear Funds Agreement ("ONFA"), the Decommissioning Segregated Fund is established to pay for costs associated with the decommissioning program, the low and intermediate level waste disposal program, certain costs of the used fuel storage program incurred after the stations are shut down, and the costs of the low and intermediate level waste storage program incurred after the stations are shut down. The Used Fuel Segregated Fund is established to pay for costs associated with the used fuel disposal program, and certain costs of the used fuel storage program incurred after the stations are shut down.

The costs of the used fuel storage and low and intermediate level waste storage programs incurred during the stations' operating lives are funded from OPG's operational cash and, in accordance with the ONFA, are not drawn from the segregated funds.

AMPCO Interrogatory #083

Ref: C2-T1-S1

Issue Number: 8.1

Issue: Is the revenue requirement methodology for recovering nuclear liabilities in relation to nuclear waste management and decommissioning costs appropriate? If not, what alternative methodology should be considered?

Interrogatory

For the prescribed nuclear facilities, please provide years ending December 31, 2010 to 2015 nuclear segregated funds balance at a station level and the five nuclear decommissioning and waste management programs. Please fill table below.

Prescribed Facilities - Nuclear Segregated Funds - Nuclear Station and Program Allocation Level							
Line No.		Decommissioning Program	L&ILW Storage Program	L&ILW Disposal Program	Used Fuel Disposal Program	Used Fuel Storage Program	Total ARO
		(a)	(b)				(e)
	December 31, 2010 Actual						
1	Pickering A NGS						
2	Pickering B NGS						
4	Darlington NGS						
5	Total						
	December 31, 2011 Actual						
6	Pickering A NGS						
7	Pickering B NGS						
9	Darlington NGS						
10	Total						
	December 31, 2012 Actual						
11	Pickering A NGS						
12	Pickering B NGS						
14	Darlington NGS						
15	Total						
	December 31, 2013 Actual						
16	Pickering A NGS						
17	Pickering B NGS						
19	Darlington NGS						
20	Total						
	December 31, 2014 Plan						
21	Pickering A NGS						
22	Pickering B NGS						
24	Darlington NGS						
25	Total						
	December 31, 2015 Plan						
26	Pickering A NGS						
27	Pickering B NGS						
29	Darlington NGS						
30	Total						

Response

Witness Panel: Finance, D&V Accounts, Nuclear Liabilities

1
2 OPG does not have nuclear segregated fund balances by nuclear waste management and
3 decommissioning program as this is not required under the ONFA. The ONFA prescribes the
4 derivation of the fund contribution amounts, by station, at the total liability level (referred to in the
5 ONFA as the "Used Fuel or Decommissioning Balance to Complete Cost Estimate"), rather than
6 by individual program.
7
8 Refer to response to Ex. L-08.1-2 AMPCO-079 for the breakdown of the nuclear segregated
9 fund balances by station.

AMPCO Interrogatory #084

Ref: C2-T1-S1

Issue Number: 8.1

Issue: Is the revenue requirement methodology for recovering nuclear liabilities in relation to nuclear waste management and decommissioning costs appropriate? If not, what alternative methodology should be considered?

Interrogatory

For the prescribed nuclear facilities, please explain how total contributions to the Nuclear Segregated Funds are calculated at a station level?

Response

The contributions to the Used Fuel Segregated Fund ("UFSF") and Decommissioning Segregated Fund ("DSF") are calculated pursuant to the ONFA. The main steps in the calculation of the UFSF and DSF contributions, in summary, are:

- The UFSF and DSF funded liability (referred to in the ONFA as the "Used Fuel or Decommissioning Balance to Complete Cost Estimate") is calculated by station in accordance with the current approved ONFA reference plan cost estimates;
- The accumulated UFSF and DSF balance, which is tracked by station using a funds continuity schedule in accordance with the ONFA, is obtained;
- The station's UFSF/DSF funded liability is subtracted from the station's accumulated UFSF/DSF balance to determine the unfunded UFSF/DSF amount; and
- The quarterly contributions for each station are determined such that the station's unfunded UFSF/DSF amount is fully funded by end of its remaining operating period.

The detailed requirements under the ONFA with respect to the determination of the fund contributions can be found in EB-2012-0002 Ex. L-1-1 Staff-005(b) and accompanying attachment.

Board Staff Interrogatory #180

Ref: Exh. C2-4-1 Table 1a Note 3 line 4c

Issue Number: 8.2

Issue: Is the revenue requirement impact of the nuclear liabilities appropriately determined?

Interrogatory

Please explain why deferred income taxes - long-term are calculated for the following items with respect to the Bruce facilities and also indicate if these items were included in deferred income taxes in the last payment order:

- Used Fuel Storage and Disposal Variable Expenses
- Low & Intermediate Level Waste Management Variable Expenses
- Accretion Expense
- Segregated Fund Earnings (Losses)

Response

Deferred income taxes are included as a cost in determining OPG's Bruce Lease net revenues, as they are recognized as a cost in accordance with generally accepted accounting principles for unregulated entities.

The referenced items give rise to deferred income taxes because there are temporary differences between the tax basis and the accounting carrying value of these items. Ex. G2-2-1, section 5.9 provides a discussion of deferred taxes associated with temporary timing differences that would apply to the referenced items. Their calculation is shown at lines 23-32 in Ex. G2-2-1, Table 7 for 2010 - 2012 and Table 8 for 2013 - 2015.

Deferred income taxes, including those on the referenced items were included in the EB-2010-0008 Payment Amounts Order.¹ They were similarly included in the balance of the Bruce Lease Net Revenues Variance Account as at December 31, 2012 approved for disposition in EB-2013-0321. Deferred income taxes included in the revenue requirement requested in this Application were determined in the same manner as in EB-2010-0008 and EB-2012-0002.

¹ The USGAAP term "deferred income taxes" is equivalent to the Canadian GAAP term "future income taxes" used in EB-2010-0008.

Board Staff Interrogatory #181

Ref: Exh. C2-4-1 Table 5

Issue Number: 8.2

Issue: Is the revenue requirement impact of the nuclear liabilities appropriately determined?

Interrogatory

Please provide detailed calculations showing the derivation of all the line item amounts in columns (a) and (b) except for lines 6, 7, 8, 15, 16, 17 and 18.

Response

OPG understands that the reference to Ex. C2-4-1, Table 5 should read Ex. C2-1-1, Table 5. The requested calculations are provided below. A breakdown by line number in Ex. C2-1-1 Table, a description of the cost and the derivation of the line item follows:

Depreciation of Asset Retirement Costs (Lines 1 and 9)

Charts 1 and Chart 2 provide the derivation of projected depreciation of Asset Retirement Costs ("ARC") for the prescribed and Bruce facilities, respectively.

Chart 1
Projected 2014 and 2015 ARC Depreciation for Prescribed Facilities (\$M)¹

	Pickering A (Units 1 & 4)	Pickering B (Units 5-8)	Darlington	Total
(1) Net book value of ARC at Jan 1, 2014 ^{2,3}	147.7	197.0	1,085.1	1,429.8
(2) Remaining service life at Jan 1, 2014 (yrs) ⁴	7	6.33	38	
(3) 2014 Depreciation Expense (3)=(1)/(2)	21.1	31.0	28.6	80.7
(4) Net book value of ARC at Jan 1, 2015 ³ (4)=(1)-(3)	126.6	166.0	1,056.5	1,349.1
(5) Remaining service life at Jan 1, 2015 (yrs) ⁴	6	5.33	37	
(6) 2015 Depreciation Expense (6)=(4)/(5)	21.1	31.0	28.6	80.7

¹ Numbers may not calculate due to rounding

² As derived from Ex. H1-1-1 Table 10, note 1 for corresponding columns: line 5a - line 7a + line 10a - line 11a

³ Total ARC opening net book value for 2014 is as per Ex. C2-1-1 Table 2, line 23, col. (e) and for 2015 as per Ex. C2-1-1 Table 2, line 23, col. (f)

⁴ Based on the average station end-of-life dates of December 31, 2020 for Pickering A (Units 1 & 4), April 30, 2020 for Pickering B (Units 5-8), and December 31, 2051 for Darlington, as noted on p. 3 of Ex. F4-1-1

Chart 2
Projected 2014 and 2015 ARC Depreciation for Bruce Facilities (\$M)¹

		Bruce A	Bruce B	Total
(1) Net book value of ARC at Jan 1, 2014 ²	(a)	1,497.4	346.8	1,844.2
(2) Remaining service life at Jan 1, 2014 (yrs) ³	(b)	35	6	
(3) 2014 Depreciation Expense (3)=(1)/(2)	(c)=(a)/(b)	42.8	57.8	100.6
(4) Net book value of ARC at Jan 1, 2015 ² (4)=(1)-(3)	(d) = (a)-(c)	1,454.6	289.0	1,743.6
(5) Remaining service life at Jan 1, 2015 (yrs) ³	(e)	34	5	
(6) 2015 Depreciation Expense (6)=(4)/(5)	(f)=(d)/(e)	42.8	57.8	100.6

¹ Numbers may not calculate due to rounding

² Total ARC opening net book value for 2014 is as per Ex. C2-1-1 Table 3, line 20, col. (e) and for 2015 as per Ex. C2-1-1 Table 3, line 20, col. (f)

³ Based on average station end-of-life dates of December 31, 2048 for Bruce A and December 31, 2019 for Bruce B, as noted on p. 3 of Ex. F4-1-1

Used Fuel Storage and Disposal Variable Expenses (Lines 2 and 10)

Line 2: Chart 3 (2014) and Chart 4 (2015) provide the derivation of projected used fuel storage ("UFS") and used fuel disposal ("UFD") variable expenses for the prescribed facilities

Line 10: Chart 5 (2014) and Chart 6 (2015) provide the derivation of projected UFS and UFD variable expenses for the Bruce facilities.

Chart 3
Projected 2014 Used Fuel Variable Expenses for Prescribed Facilities¹

Facility	Used Fuel Volume (bundles)	UFD Variable Cost Rate (\$/bundle)	UFS Variable Cost Rate (\$/bundle)	UFD Variable Expenses (\$M)	UFS Variable Expenses (\$M)	Total Used Fuel Variable Expense (\$M)
	(a)	(b)	(c)	(d)=(a)x(b)	(e)=(a)x(c)	(f)=(d)+(e)
Pickering A	5,098	1,064	584	5.4	3.0	8.4
Pickering B	13,107	1,064	586	13.9	7.7	21.6
Darlington	23,214	1,064	61	24.7	1.4	26.1
Total	41,419			44.1	12.1	56.1

¹ Numbers may not calculate due to rounding

Chart 4
Projected 2015 Used Fuel Variable Expenses for Prescribed Facilities¹

Facility	Used Fuel Volume (bundles) (a)	UFD Variable Cost Rate (\$/bundle) (b)	UFS Variable Cost Rate (\$/bundle) (c)	UFD Variable Expenses (\$M) (d)=(a)x(b)	UFS Variable Expenses (\$M) (e)=(a)x(c)	Total Used Fuel Variable Expense (\$M) (f)=(d)+(e)
Pickering A	5,713	1,101	604	6.3	3.5	9.7
Pickering B	12,952	1,101	606	14.3	7.8	22.1
Darlington	21,335	1,101	63	23.5	1.3	24.8
Total	40,000			44.0	12.6	56.7

¹ Numbers may not calculate due to rounding

Chart 5
Projected 2014 Used Fuel Variable Expenses for Bruce Facilities¹

Facility	Used Fuel Volume (bundles) (a)	UFD Variable Cost Rate (\$/bundle) (b)	UFS Variable Cost Rate (\$/bundle) (c)	UFD Variable Expenses (\$M) (d)=(a)x(b)	UFS Variable Expenses (\$M) (e)=(a)x(c)	Total Used Fuel Variable Expense (\$M) (f)=(d)+(e)
Bruce A	17,076	1,064	49	18.2	0.8	19.0
Bruce B	21,382	1,064	589	22.8	12.6	35.3
Total	38,459			40.9	13.4	54.3

¹ Numbers may not calculate due to rounding

Chart 6
Projected 2015 Used Fuel Variable Expenses for Bruce Facilities¹

Facility	Used Fuel Volume (bundles) (a)	UFD Variable Cost Rate (\$/bundle) (b)	UFS Variable Cost Rate (\$/bundle) (c)	UFD Variable Expenses (\$M) (d)=(a)x(b)	UFS Variable Expenses (\$M) (e)=(a)x(c)	Total Used Fuel Variable Expense (\$M) (f)=(d)+(e)
Bruce A	17,081	1,101	50	18.8	0.9	19.7
Bruce B	21,499	1,101	609	23.7	13.1	36.8
Total	38,581			42.5	14.0	56.4

¹ Numbers may not calculate due to rounding

Low and Intermediate Level Waste Management Variable Expenses (Lines 3 and 11)
Line 3: Chart 7 (2014) and Chart 8 (2015) provide the derivation of projected low-level waste ("LLW") and intermediate-level waste ("ILW") variable expenses for the prescribed facilities.

Line 11: Chart 9 (2014) and Chart 10 (2015) provide the derivation of projected LLW and ILW variable expenses for the Bruce facilities. As waste volumes are based on forecasts received from Bruce Power, this information is confidential.

Chart 7
Projected 2014 LLW and ILW Variable Expenses for Prescribed Facilities¹

		Pickering A (Units 1 & 4)	Pickering B (Units 5-8)	Darlington	Total
Waste Volume (m³)	(1) LLW Storage	341	682	276	1,299
	(2) LLW Disposal	341	682	276	1,299
	(3) ILW Storage	54	108	24	186
	(4) ILW Disposal	54	108	24	186
Rate (\$/m³)	(5) LLW Storage	1,026	1,026	1,026	
	(6) LLW Disposal	352	352	352	
	(7) ILW Storage	5,987	5,987	5,987	
	(8) ILW Disposal	1,239	1,239	1,239	
Variable Expenses (\$M)	(9) LLW Storage (9)=(1)x(5)	0.3	0.7	0.3	1.3
	(10) LLW Disposal (10)=(2)x(6)	0.1	0.2	0.1	0.5
	(11) ILW Storage (11)=(3)x(7)	0.3	0.6	0.1	1.1
	(12) ILW Disposal (12)=(4)x(8)	0.1	0.1	0.0	0.2
Total LLW and ILW Variable Expenses		0.9	1.7	0.6	3.1

¹ Numbers may not calculate due to rounding

Chart 8
Projected 2015 LLW and ILW Variable Expenses for Prescribed Facilities¹

		Pickering A (Units 1 & 4)	Pickering B (Units 5-8)	Darlington	Total
Waste Volume (m³)	(1) LLW Storage	382	764	294	1,440
	(2) LLW Disposal	382	764	294	1,440
	(3) ILW Storage	128	255	76	459
	(4) ILW Disposal	128	255	76	459
Rate (\$/m³)	(5) LLW Storage	1,062	1,062	1,062	
	(6) LLW Disposal	364	364	364	
	(7) ILW Storage	6,196	6,196	6,196	
	(8) ILW Disposal	1,283	1,283	1,283	
Variable Expenses (\$M)	(9) LLW Storage (9)=(1)x(5)	0.4	0.8	0.3	1.5
	(10) LLW Disposal (10)=(2)x(6)	0.1	0.3	0.1	0.5
	(11) ILW Storage (11)=(3)x(7)	0.8	1.6	0.5	2.8
	(12) ILW Disposal (12)=(4)x(8)	0.2	0.3	0.1	0.6
Total LLW and ILW Variable Expenses		1.5	3.0	1.0	5.5

¹ Numbers may not calculate due to rounding

Chart 9
Projected 2014 LLW and ILW Variable Expenses for Bruce Facilities¹

		Bruce A	Bruce B	Total
Waste Volume (m³)	(1) LLW Storage			
	(2) LLW Disposal			
	(3) ILW Storage			
	(4) ILW Disposal			
Rate (\$/m³)	(5) LLW Storage			
	(6) LLW Disposal			
	(7) ILW Storage			
	(8) ILW Disposal			
Variable Expenses (\$M)	(9) LLW Storage (9)=(1)x(5)	0.9	0.6	1.5
	(10) LLW Disposal (10)=(2)x(6)	0.3	0.2	0.5
	(11) ILW Storage (11)=(3)x(7)	0.2	0.2	0.3
	(12) ILW Disposal (12)=(4)x(8)	0.0	0.0	0.1
Total LLW and ILW Variable Expenses		1.4	1.0	2.4

¹ Numbers may not calculate due to rounding

Chart 10
Projected 2015 LLW and ILW Variable Expenses for Bruce Facilities¹

		Bruce A	Bruce B	Total
Waste Volume (m³)	(1) LLW Storage			
	(2) LLW Disposal			
	(3) ILW Storage			
	(4) ILW Disposal			
Rate (\$/m³)	(5) LLW Storage			
	(6) LLW Disposal			
	(7) ILW Storage			
	(8) ILW Disposal			
Variable Expenses (\$M)	(9) LLW Storage (9)=(1)x(5)	0.9	1.0	1.9
	(10) LLW Disposal (10)=(2)x(6)	0.3	0.3	0.6
	(11) ILW Storage (11)=(3)x(7)	0.7	0.4	1.0
	(12) ILW Disposal (12)=(4)x(8)	0.1	0.1	0.2
Total LLW and ILW Variable Expenses		1.9	1.8	3.8

¹ Numbers may not calculate due to rounding

Return on Rate Base at Weighted Average Accretion Rate (Line 4)

Chart 11 provides the derivation of projected 2014 and 2015 return on rate base at the weighted average accretion rate for the prescribed facilities.

Chart 11
Projected Return on Rate Base at Accretion Rate for Prescribed Facilities¹

Year	Adjustment for Lesser of UNL or ARC ² (\$M)	Weighted Average Accretion Rate ³	Return on Rate Base at Weighted Average Accretion Rate (\$M)
	(a)	(b)	(c) = (a) x (b)
2014	1,389.5	5.37%	74.6
2015	1,308.8	5.37%	70.3

¹ Numbers may not calculate due to rounding

² As calculated at Ex. C2-1-1 Table 2, line 32, col. (e) for 2014 and col. (f) for 2015

³ As discussed in Ex. C2-1-1, section 3.0

Return on Rate Base at Weighted Average Cost of Capital (Line 5)

Refer to Ex. C2-1-1, Table 1a, Note 1, lines 5a and 6a for the calculation of the projected return on rate base at weighted average cost of capital for 2014 and 2015, respectively.

Accretion Expense (Line 12)

Chart 12 provides the derivation of projected 2014 and 2015 accretion expenses for the Bruce facilities.

Chart 12
Projected Accretion Expense for Bruce Facilities (\$M)^{1,2}

		Tranche 1	Tranche 2	Tranche 3	Tranche 4	Tranche 5	Total
	(1) Accretion Rates ³	5.75%	4.60%	4.80%	3.43%	3.50%	
2014	(2) ARO Balance, Jan 1, 2014	5,131.9	1,178.1	(218.9)	537.6	804.1	7,432.8
	(3) Variable Expense ⁴	0.0	0.0	0.0	0.0	56.7	56.7
	(4) Expenditures ⁵	(98.2)	(14.5)	(3.3)	(8.2)	(4.7)	(128.9)
	(5) Accretion Expense (5)=(2)+1/2x [(3)+(4)]x(1)	292.3	53.9	(10.6)	18.3	29.1	382.9
2015	(6) ARO Balance, Jan 1, 2015 (6)=(2)+(3)+(4)+(5)	5,326.0	1,217.5	(232.9)	547.7	885.2	7,743.5
	(7) Variable Expenses ⁴	0.0	0.0	0.0	0.0	60.2	60.2
	(8) Expenditures ⁵	(131.1)	(19.1)	(4.4)	(10.8)	(7.3)	(172.7)
	(9) Accretion Expense (9)=(6)+1/2x [(7)+(8)]x(1)	302.5	55.6	(11.3)	18.6	31.9	397.3

¹ Numbers may not calculate due to rounding

² Tranches correspond to the following: Tranche 1 = ARO recorded prior to December 31, 2006; Tranche 2 = ARO recorded on December 31, 2006 arising from the approved 2006 ONFA Reference Plan; Tranche 3 = ARO recorded on December 31, 2010 in relation to the decision related to the Darlington refurbishment project; Tranche 4 = ARO recorded on December 31, 2011 arising from the approved 2012 ONFA Reference Plan; Tranche 5 = ARO recorded on December 31, 2012 arising from the approved 2012 ONFA Reference Plan

³ Accretion rates for each tranche are as per EB-2012-0002, Ex. M1-1, Attachment 3, Table 1a, note # to note 1, col. (c)

⁴ Total is sum of line 4 and line 5 from Ex. C2-1-1, Table 3, col. (e) for 2014 and col. (f) for 2015, exclusive of consolidation adjustments

⁵ Total is from Ex. C2-1-1, Table 3, line 7, col. (e) for 2014 and col. (f) for 2015

Segregated Fund Earnings (Losses) (Line 13)

The projected 2014 and 2015 segregated fund earnings (losses) for the Bruce facilities are calculated using the long-term target rate of return of 5.15% per the Ontario Nuclear Funds Agreement and information in Ex. C2-1-1, Table 3, col. (e) for 2014 and col. (f) for 2015, as follows:

$$[\text{Line 14} + 1/2 \times (\text{line 16} + \text{line 17})] \times 5.15\%$$

Bruce Facilities' Income Tax Impact (Line 14)

Refer to Ex. C2-1-1, Table 1a, Note 3, cols. (e) and (f) for the calculation of projected Bruce Facilities' income tax impact for 2014 and 2015, respectively.

VECC Interrogatory #006

Ref: C2-1-1, page 7

Issue Number: 8.2

Issue: Is the revenue requirement impact of the nuclear liabilities appropriately determined?

Interrogatory

- a) The evidence at page 7 asserts that the current approved ONFA Reference Plan increases the test period revenue requirement by \$136.4M (relative to what was included in rates as a result of the previously approved ONFA Reference Plan) as set out in Exhibit C2 Tab 1 Schedule 1 Table 5; please confirm that in fact the current approved ONFA Reference Plan increases the test period revenue requirement by \$442.3M (relative to what was included in rates as a result of the previously approved ONFA Reference Plan), with \$305.9M of that increase being recorded in the Bruce Lease Net Revenues Variance Account. If not confirmed, please explain how the \$305.9M of increased revenue requirement as indicated on line 17 column e) of Table 5 is tracked and (presumably) recovered.
- b) What is OPG's position with respect to the role, if any, that the OEB has with respect to reviewing and approving the details, accuracy and resulting impacts of the current approved ONFA Reference Plan on rates?

Response

- a) Not confirmed.

Ex. C2-1-1, p. 7 specifically identifies the revenue requirement impact for prescribed facilities. Ex C2-1-1 Table 5 provides a breakdown of the approved ONFA reference plan on prescribed facilities (\$136.4M at line 8) and on Bruce facilities (\$305.9M at line 17) and the total impact \$442.3M at line 18). None of this amount will be reflected in the Bruce Lease Net Revenue Variance Account, assuming an effective date of January 1, 2014 for new nuclear payment amounts, because it is reflected in the proposed revenue requirement.

- b) OPG's position is that the OEB must comply with section 6(2)8 of O. Reg. 53/05, which states: "The Board shall ensure that Ontario Power Generation Inc. recovers the revenue requirement impact of its nuclear decommissioning liability arising from the current approved reference plan." Therefore, OPG believes that the OEB must ensure that the revenue requirement impacts included in approved payment amounts are accurately calculated based on the current approved ONFA Reference Plan. Based on section 6(2)8, the OEB must consider the revenue requirement impact and the calculation of that impact, but must accept the ONFA Reference Plan as approved.

The OEB must also comply with section 6(2)7 of O. Reg. 53/05 with respect to the recovery of the balance recorded in the Nuclear Liability Deferral Account, by authorizing its recovery over a period not to exceed three years upon being satisfied that the revenue requirement

- 1 impacts of the current approved ONFA Reference Plan have been accurately recorded, as
- 2 reflected in OPG's audited financial statements.