Board Staff Interrogatory #130

Ref: Ex. C2-T1-S2, pages 7-9 and Tables 2, 5

Issue Number: 8.2
Issue: Is the revenue requirement amount for nuclear liabilities related to nuclear waste management and decommissioning costs appropriately determined?

Interrogatory

The Board approved a GAAP approach to determine the net revenue impact for the nuclear liabilities associated with the Bruce facilities in the EB-2007-0905 decision. Please indicate how the revenue requirement derived for the Bruce in the test period (2001-2012) complied with GAAP and how the calculations for 2009 (historic year) tied to information in OPG's 2009 consolidated financial statements for Prescribed Assets.

Response

OPG's response is based on an understanding that the reference to the year "2001" in the question is meant to read "2011".

The components included in the revenue requirement calculation for the nuclear liabilities associated with the Bruce facilities in Ex. C2-T1-S2, Table 5, lines 7-11 for 2011 – 2012 are calculated based on OPG's forecast of its total nuclear liability balances and associated expenses and expenditures, and the nuclear segregated fund balances and associated earnings and fund disbursements. The computation of these forecast amounts uses the same methodology as that used for recording these amounts in OPG's general-purpose accounting financial records, which are maintained in accordance with generally accepted accounting principles ("GAAP"). The forecast amounts are based on OPG's latest available historical actual closing amounts as per these accounting records, which is December 31, 2009 in this instance. The accounting records form the basis for OPG's corporate consolidated financial statements, which are presented in accordance with GAAP and are audited by external auditors for compliance with GAAP.

The Bruce portion of OPG's total forecast amounts associated with nuclear liabilities are determined using the methodology outlined in Ex. C2-T1-S2, sections 3.1 and 3.3 and in Ex. G2-T2-S1, page 10, lines 4-31, page 11, lines 28-31, and page 12, lines 1-14. The methodology for determining the Bruce portion of nuclear segregated funds and related earnings is discussed in Ex. G2-T2-S1, page 11, lines 1-26, and in Ex. L-1-142. The method of allocation of costs and revenues related to Bruce assets, including those pertaining to nuclear liabilities and segregated funds, was reviewed by an external consultant, Black & Veatch (Ex. F5-T2-S1, pages 16-18). Black & Veatch concluded, as shown on page 18 of Ex. F5-T2-S1, that "the methodology is appropriate and properly reflects the costs OPG incurs and revenues it realizes."

The Bruce facilities are excluded from the 2009 consolidated financial statements for prescribed assets, consistent with the OEB's findings in EB-2007-0905. As such, the 2009 historical information of the net revenue impact of the nuclear liabilities associated with the Bruce facilities presented in Ex. C2-T1-S2, Table 5 cannot be tied to the information in the above-noted financial statements.

Board Staff Interrogatory #131

Ref: Ex. C2-T1-S1; C2-T1-S2, Tables 1-5

Issue Number: 8.2
Issue: Is the revenue requirement amount for nuclear liabilities related to nuclear waste management and decommissioning costs appropriately determined?

Interrogatory

OPG as a publicly accountable enterprise for financial accounting reporting purposes will be required to adopt IFRS starting in 2011. OPG's revenue requirement request for nuclear liabilities (asset retirement obligations) for the test period (2011-2012) was determined under a Canadian GAAP basis of accounting.

a) Will OPG's accounting for nuclear liabilities under IFRS effective on January 1, 2011 be different from Canadian GAAP?

b) If no to a) above indicate why not.

c) If yes to a) above,
   i) Specify the accounting changes and their impacts on treatment of nuclear liabilities in the test period
   ii) Identify any financial differences and resulting revenue requirement impacts arising from the adoption of IFRS accounting in the test period.

Response

Parts a), b) and c), see Ex. L-01-010.

Board Staff Interrogatory #132

Ref: Ex. C2-T1-S2, Table 1

Issue Number: 8.2
Issue: Is the revenue requirement amount for nuclear liabilities related to nuclear waste management and decommissioning costs appropriately determined?

Interrogatory

For the Darlington Refurbishment Adjustment of $497.4 M on line 2 and $475.2 M on line 23 for 2010, please provide the calculations including assumptions used in deriving these amounts.

Response

Please note that this response addresses Ex. L-01-132 and Ex. L-01-133, as the same assumptions, allocation methodology, and accounting requirements apply to the prescribed facilities and the Bruce facilities (which are the subject of Ex. L-01-133).

The Darlington Refurbishment Adjustment of $497.4M for the prescribed facilities (Ex. C2-T1-S2, Table 1, line 2) and of ($204.4M) for the Bruce facilities (Ex. C2-T1-S2, Table 2, line 2) was calculated as follows:

Assumptions:

1) The Darlington Refurbishment project extends the station life to December 31, 2051 representing approximately 30 years of operations post refurbishment.
2) The base line cost estimate is that in the current approved Ontario Nuclear Funds Agreement ("ONFA") reference plan.
3) The nuclear waste volume forecast is updated based on the extended Darlington station life.

The total value of the nuclear liabilities, over their life, per the 2006 Reference Plan without Darlington Refurbishment is the base case scenario. Using the changed assumptions as listed above, the total value of the nuclear liabilities, over their life, is recalculated as the Darlington Refurbishment scenario. The $293.0M difference between those two calculations represents the change in Asset Retirement Obligation ("ARO") as a result of the Darlington Refurbishment. In accordance with the Canadian Institute of Chartered Accountants ("CICA") Handbook, Section 3110 (Asset Retirement Obligations), the overall increase of $293.0M in present value terms was calculated using a credit adjusted risk-free rate of 4.8 per cent. The $497.4M ARO adjustment amount for prescribed facilities and the ($204.4M) adjustment amount for the Bruce facilities is derived from the station level allocation methodology as described in Ex. C2-T1-S2, pages 2-3.

Also as described in Ex. C2-T1-S2, any increase or decrease in the ARO must be accompanied by an equal amount of increase or decrease in the net book value of the assets to which the retirement obligation relates. This addition to net book value is known as an asset retirement cost (“ARC”).

The impact of Darlington Refurbishment on ARO and ARC is shown in Ex. C2-T1-S2, Table 3, reproduced below. As noted in Ex. C2-T1-S2, Table 3, the net book value of Bruce B at December 31, 2009 is $81.0M. The value of Bruce B, after allocation of $115.7M in negative ARC on January 1, 2010 would be ($34.7M). Per generally accepted accounting principles (“GAAP”), the negative value is reallocated to other nuclear facilities. The basis of the reallocation was the proportionate net book value of the ARC by station as at January 1, 2010. As a result of the reallocation of the negative net book value of Bruce B, the ARO adjustment of $497.4M for prescribed facilities became $475.2M in ARC as shown in column d) below, while the ARO adjustment of ($204.4M) for Bruce facilities became ($182.1M) in ARC.

Table 3

Impact of Darlington Refurbishment Project - Assignment of ARO Adjustment and Allocation of ARC to Nuclear Stations ($M)

Line No.	Description	Pickering A	Pickering B	Darlington	Prescribed Facilities Total	Bruce A	Bruce B	Bruce Facilities Total	Total
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
1	**Decommissioning Program**	41.8	1.7	(504.9)	(461.5)	0.8	1.5	2.3	(459.1)
2	**Intermediate Level Waste Program**	(66.3)	(73.2)	180.2	40.6	(1.9)	(14.4)	(16.3)	24.4
3	**Low Level Waste Program**	14.7	13.4	51.6	79.7	7.2	(4.8)	2.4	82.1
4	**Used Fuel Disposal Program**	(155.8)	(149.4)	1,108.4	803.2	(168.8)	(104.9)	(273.7)	529.5
5	**Used Fuel Storage Program**	0.8	4.0	30.4	35.3	74.1	6.8	81.0	116.2
6	**ARO Adjustment Assignment to Station Level**	(164.8)	(203.5)	865.7	497.4	(88.7)	(115.7)	(204.4)	293.0
7	**Reallocation of Negative Net Book Value of Stations**[1]	(0.9)	0.6	(22.0)	(22.2)	(12.4)	34.7	22.2	0.0
8	**Asset Retirement Cost Adjustment**	(165.7)	(202.9)	843.7	475.2	(101.1)	(81.0)	(182.1)	293.0

1 Net Book Value of Bruce B at December 31, 2009 is $81.0M. The value of Bruce B, after allocation of $115.7M in negative ARC on January 1, 2010 would be negative $34.7M. Per GAAP, the negative value is to be reallocated to other nuclear facilities. The basis of the reallocation was the proportionate net book value of the ARC by station as at January 1, 2010.

Board Staff Interrogatory #133

Ref: Ex. C2-T1-S2, Table 2

Issue Number: 8.2
Issue: Is the revenue requirement amount for nuclear liabilities related to nuclear waste management and decommissioning costs appropriately determined?

Interrogatory

For the Darlington Refurbishment Adjustment of $(204.4) M on line 3 and $(182.1) M on line 21 for 2010, please provide the calculations including assumptions used in deriving these amounts.

Response

See response to Ex. L-01-132.

Board Staff Interrogatory #134

Ref: Ex. C2-T1-S2, Tables 3-4

Issue Number: 8.2
Issue: Is the revenue requirement amount for nuclear liabilities related to nuclear waste management and decommissioning costs appropriately determined?

Interrogatory

Please provide a descriptive summary of the Darlington Refurbishment Asset Retirement Obligation information contained in Tables 3 and 4 including how the derived amounts are linked to the calculations of the other tables of Schedule 2.

Response

Descriptive Summary of Table 3:

Table 3 provides a breakdown of the Asset Retirement Obligation ("ARO") impact for each of the five programs included in nuclear station retirement and the management of nuclear waste as described in Ex. C2-T1-S2, pages 2 and 3. Table 3 provides the station-level allocation of the change to the ARO amount of $293M resulting from the Darlington Refurbishment project and the allocation of the Asset Retirement Cost ("ARC") to the prescribed facilities and the Bruce facilities. Ex. L-01-132 describes how the ARO and ARC values are reflected in Ex. C2-T1-S2, Tables 1-2.

Descriptive Summary of Table 4:

Ex. C2-T1-S2, Table 4 shows the impact on the revenue requirement of the adjustment to nuclear liabilities due to the Darlington Refurbishment project. Specific evidence references are provided for each component of the revenue requirement that is impacted (columns a) and b)). Columns c) and d) provide the revenue requirement impacts for a scenario where the Darlington Refurbishment project is not included in revenue requirement. The derivations of the values in column c) and d) are provided by reference to evidence or described in the footnotes to Table 4. For each component, column e) provides the net revenue requirement impact related to the adjustment to nuclear liabilities associated with the Darlington Refurbishment project.

Energy Probe Interrogatory #028

Ref: Ex. C2-T1-S1, Nuclear Waste Generation and Decommissioning

Issue Number: 8.2
Issue: Is the revenue requirement amount for nuclear liabilities related to nuclear waste management and decommissioning costs appropriately determined?

Interrogatory

Page 3 of the exhibit refers to the management of low level and intermediate level radioactive waste storage and disposal.

Radiation hormesis (also called radiation homeostasis) is the hypothesis that chronic low doses of ionizing radiation are beneficial, having the opposite effect in small doses than in large doses. Extensive research on radiation hormesis has been undertaken by the French Academy of Sciences – National Academy of Medicine. Would acceptance of this hypothesis result in substantial reduction in the costs associated with the management of low level waste?

Response

OPG does not know the impact of acceptance of this hypothesis. The scope of OPG's program for low and intermediate level waste ("L&ILW") storage and disposal is based on the Nuclear Safety and Control Act, and associated Regulations, which are managed by the Canadian Nuclear Safety Commission ("CNSC"). Any changes to the scope (and therefore cost) of nuclear waste management would occur in response to a change in the regulations from the CNSC.

GEC Interrogatory #036

Ref: Ex. D2-T2-S1

Issue Number: 8.2
Issue: Is the revenue requirement amount for nuclear liabilities related to nuclear waste management and decommissioning costs appropriately determined?

Interrogatory

The minutes of the April 1st information session state: "Responding to a question regarding existence of "Plan B" for funding the nuclear liabilities if the Darlington refurbishment does not go ahead, OPG indicated it could not comment beyond what was included in the ONFA reference plan and the presumption that Darlington refurbishment will proceed." Has OPG developed an end-of-life and decommissioning plan for the Darlington nuclear station if the final business case shows that the project is too risky or uneconomical? If not, is OPG planning to develop such a contingency scenario?

Response

The approved 2006 Ontario Nuclear Funds Agreement ("ONFA") Reference Plan incorporates the current preliminary decommissioning plan ("PDP") for the Darlington Generating Station. The assumed end-of-life dates in the PDP assume no refurbishment.

OPG's Application is based on an Asset Retirement Obligation ("ARO") that includes the Darlington Refurbishment project. The $293M adjustment of OPG's ARO described in Ex C2-T1-S2, Table 3 resulting from the Darlington refurbishment project is the result of an increase in nuclear fuel and waste offset by a reduced decommissioning liability in present value terms.

GEC Interrogatory #038

Ref: Ex. D2-T2-S1

Issue Number: 8.2
Issue: Is the revenue requirement amount for nuclear liabilities related to nuclear waste management and decommissioning costs appropriately determined?

Interrogatory

Please provide the cost assumption for used nuclear fuel management in calculating the LUEC price for the Darlington refurbishment project. If this involves a range of low, medium and high estimates please provide them.

Response

The median cost of used fuel management included in OPG's calculation of the Levelized Unit Energy Cost ("LUEC") of Darlington Refurbishment is 0.04¢/kWh (2010$). A range of plus 30 per cent and minus 30 per cent was used in developing the sensitivity analysis of the LUEC.

GEC Interrogatory #039

Ref: Ex. D2-T2-S1

Issue Number: 8.2
Issue: Is the revenue requirement amount for nuclear liabilities related to nuclear waste management and decommissioning costs appropriately determined?

Interrogatory

Please provide the decommissioning cost assumptions used in calculating the LUEC price for the Darlington refurbishment project.

Response

The decision to refurbish the Darlington Generating Station units results in a change of assumption which effectively delays the planned decommissioning dates of the Darlington Generating Station units by 30 years. The effect of this change is to reduce the estimated present value cost of decommissioning the Darlington Generating Station units. Other than the timing of decommissioning, there are no incremental impacts of the refurbishment decision on decommissioning assumptions.

Based on the approved 2006 Ontario Nuclear Funds Agreement ("ONFA") reference plan, the Decommissioning Fund was determined to be fully funded and no additional contributions were required. As a result, the Levelized Unit Energy Cost ("LUEC") evaluation for Darlington Generating Station assumed zero future payments into the Decommissioning Fund for Darlington Generating Station decommissioning.

Pollution Probe Interrogatory #005

Ref: Ex. C2-T1-S1, page 6, and Ex. D2-T2-S1, Attachment 4, page 4

Issue Number: 8.2
Issue: Is the revenue requirement amount for nuclear liabilities related to nuclear waste management and decommissioning costs appropriately determined?

Interrogatory

According to OPG's prefiled evidence:

Under the ONFA, the limit of OPG's financial exposure with respect to the cost of long-term management of used fuel was capped at $5.94B (January 1, 1999 present value) for the first 2.23M fuel bundles. OPG is responsible for funding the incremental costs associated with the long-term management of fuel bundles in excess of 2.23M. It is currently estimated that physically, the 2.23M bundle threshold will be reached in 2012.

a) Please provide OPG's best estimate of its financial exposure with respect to the long-term management of the used fuel which will be produced if service life of the Darlington Nuclear Station is extended by 30 years.

b) Is there a cap on OPG's financial exposure with respect to the long-term management of the used fuel which will be produced if service life of the Darlington Nuclear Station is extended by 30 years? If yes, please state the cap on OPG's financial exposure.

c) Please provide OPG's best estimate of the Government of Ontario's financial exposure with respect to the long-term management of the used fuel which will be produced if the service life of the Darlington Nuclear Station is extended by 30 years.

Response

a) OPG's best estimate of its financial exposure is its liability value estimate. The incremental liability associated with the long-term management of used fuel bundles arising from the Darlington Generating Station's 30-year life extension is approximately $779M (January 1, 2010 present value). This liability value was derived based on the approved 2006 Ontario Nuclear Funds Agreement Reference Plan baseline cost estimate.

b) There is no cap on OPG's incremental liability with respect to the long-term management of the used fuel which will be produced from the Darlington Generating Station's 30-year life extension.

c) As indicated above, the Province of Ontario has exposure to the liability for the first 2.23M bundles generated from OPG's reactors. That volume will be achieved prior to the Darlington Generating Station 30-year life extension. Therefore, the Province has no financial exposure to the used fuel liability as a result of the Darlington Generating Station's 30-year life extension.

VECC Interrogatory #031

Ref: Ex. C2-T1-S1, pages 4-6

Issue Number: 8.2
Issue: Is the revenue requirement amount for nuclear liabilities related to nuclear waste management and decommissioning costs appropriately determined?

Interrogatory

a) Please discuss whether the intent of the reference plan prepared in accordance with the Ontario Nuclear Funds Agreement ("ONFA") is to capture all of the costs for all of OPG's nuclear waste management and decommissioning obligations, and whether that is the case. To the extent that there are costs for nuclear waste management and decommissioning that are not captured in the reference plan please separately identify and quantify those costs as they appear in the revenue requirement analysis in table 5 at Exhibit C2, Tab 1, Schedule 2.

b) Please discuss whether the intent behind the segregated funds established by the ONFA is to have all of OPG's nuclear waste management and decommissioning obligations directly paid for out of the segregated funds, and whether that is the case. (It appears to VECC at Exhibit C2, Tab 1, Schedule 2, Table 1 note 4 and Table 2 note 6 that not all of OPG's nuclear waste management and decommissioning obligations are paid for directly out of segregated funds.) To the extent that there are costs for nuclear waste management and decommissioning that are not paid for out of the segregated funds, please separately identify and quantify those costs as they appear in the revenue requirement analysis in table 5 at Exhibit C2, Tab 1, Schedule 2.

Response

a) The reference plan prepared in accordance with the Ontario Nuclear Funds Agreement ("ONFA") includes all the costs of managing nuclear waste and decommissioning of all OPG-owned nuclear facilities as required by the Canadian Nuclear Safety Commission ("CNSC").

b) The intent behind the segregated funds established by the ONFA is to ensure that sufficient funds are accumulated or otherwise are available to pay for the costs of the long-term disposal management of all of OPG's nuclear waste and decommissioning obligations. The short-term storage and management of OPG's nuclear waste obligations is paid out of OPG operating funds and not from the segregated funds.

OPG is not able to break out the noted expense lines in Table 5 as requested. With respect to the expenses for nuclear waste management and decommissioning as represented by lines 1, 2, 3 for prescribed facilities and lines 7, 8, 9 for Bruce facilities in

Ex. C2-T1-S2, Table 5, OPG does not record or track these expenses by funding source as it is not required for accounting purposes.

OPG does not track the asset retirement costs based on the funding source (long-term disposal financed by ONFA funds or short-term storage financed from operational cash) for depreciation purposes (lines 1 and 7 in Table 5). OPG does not record used fuel (lines 2 and 8 in Table 5) and low and intermediate level waste (line 3 and 9 in Table 5) variable expenses based on the funding source as it is irrelevant to the booking of the incremental cost incurred as a result of producing the extra quantity of used fuel bundles or waste.

VECC Interrogatory #032

Ref: Ex. C2-T1-S2

Issue Number: 8.2
Issue: Is the revenue requirement amount for nuclear liabilities related to nuclear waste management and decommissioning costs appropriately determined?

Interrogatory

On page 1, lines 17 to 20 OPG states that "OPG is continuing to investigate the impacts of the OEB approved revenue requirement treatment on its ability to fully recover its nuclear liabilities. Based on the results of this investigation, OPG may propose modifications to the existing treatment or an alternative treatment in a future application." When OPG speaks about "its ability to recover its nuclear liabilities", does OPG include in the definition of nuclear liabilities any return or profit connected to its nuclear waste management and decommissioning obligations, or does OPG conceptually perceive such obligations simply as expenses?

Response

OPG treats its nuclear liabilities as expenses.

VECC Interrogatory #033

Ref: Ex. C2-T1-S2

Issue Number: 8.2
Issue: Is the revenue requirement amount for nuclear liabilities related to nuclear waste management and decommissioning costs appropriately determined?

Interrogatory

On page 6, lines 14-17 it appears that the evidence is specifically discussing the forecast of the earnings on the segregated funds, but refers at line 14 to a forecast of the value of the unfunded nuclear liabilities; should that reference be to a forecast "of the earnings on the segregated funds"?

Response

The statement referred to in the interrogatory describes the expected earnings on the segregated funds as being 5.15 per cent. The forecast earnings rate of 5.15 per cent is a key assumption in determining the value of the unfunded nuclear liability. In order to calculate the unfunded nuclear liability, OPG needs to forecast both the asset retirement obligation and the value of the segregated funds for the prescribed assets.

VECC Interrogatory #034

Ref: Ex. C2-T1-S2, Tables 1 and 2

Issue Number: 8.2
Issue: Is the revenue requirement amount for nuclear liabilities related to nuclear waste management and decommissioning costs appropriately determined?

Interrogatory

The following questions all relate to line items in Tables 1 and 2:

a) Tables 1 and 2 represent a division of the segregated funds between prescribed assets and the Bruce facilities. However it appears to VECC, in reading Exhibit C2, Tab 1, Schedule 1, page 7 that the segregated funds are also separable between:

   i. a Used Fuel Fund that attracts the provincial guarantee of a return of 3.25% over the change in the Consumer Price Index,

   ii. a Used Fuel Fund that does not attract a guaranteed rate of return, and

   iii. The Decommissioning Fund, which does not attract a guaranteed rate of return, but which includes the option of transferring funds out of the Fund to the OEFC and the Used Fuel Fund in equal portions under specified conditions.

   Accordingly, please break out the Nuclear Segregated funds Balance sections of Tables 1 and 2 into the three categories of funds described above.

b) Please confirm that in terms of actual expenses (i.e. excluding accounting expenses such as depreciation and accretion, and excluding fund contributions) related to OPG's nuclear waste management and decommissioning costs, the total amounts paid by OPG in any particular year appear at line 8 of Table 1 for the prescribed facilities and at line 7 of Table 2 for the Bruce Facilities. If that is not the case, please explain what other actual expenses in each year OPG either incurred or is forecast to incur in relation to its nuclear waste management and decommissioning costs and where they are accounted for in Tables 1 and 2. Do the expenditures in these two lines represent a combination of disbursements out of segregated funds and other, direct expenditures by OPG, or are these expenditures in addition to disbursements out of the segregated fund?

c) Please confirm that in terms of disbursements out of the segregated funds, the total disbursements in any particular year appear at line 16 of Table 1 and line 17 of Table 2. If that is not the case, please explain what other disbursements out of the segregated funds have been (or will be) made in any particular year and where they are accounted for in Tables 1 and 2.

d) Please explain the relationship between the total disbursements out of the segregated fund in any particular year as confirmed in IR 3 b) and the reference plan. In particular, to what extent do the disbursements in any particular year correspond to the reference plan estimate of costs for that same year? Assuming there is a correlation between the disbursements in a particular year and the reference plans' estimate of costs for that same year, how are any variations between the two amounts reconciled?

e) Please confirm that, in principle, the earnings on the segregated funds forecast at line 14 of Table 1 and line 15 of table 2 are forecasted on the assumption of a 5.15% return in accordance with the statement at Exhibit C2, Tab 1, Schedule 2, page 6, lines 14-17. Please provide an example of how the segregated fund earnings were calculated for 2011 and 2012. For instance, how was the 5.15% return used to arrive at forecast earnings of $280.6M for 2011 at line 14 of Table 1?

f) Please confirm that the contributions to the segregated funds forecast at line 15 of Table 1 and line 16 at table 2 reconcile directly with the funding requirements set out at Exhibit C2, Tab 1, Schedule 1, Attachment 1 Table 2. Please describe the conditions under which the funding requirements in Attachment 1 Table 2 might be changed, both in terms of procedure (i.e. during the course of an update to the reference plan) and in terms of cause. Please identify any known causes of future changes in the funding requirements and when those changes will be reflected in changed contribution requirements.

Response

a) Attachment 1, Table 1 and Table 2 provide the requested breakout of the Nuclear Segregated Funds Balance from Ex. C2-T1-S2, Tables 1 and 2 into the three categories of funds described above for prescribed facilities and Bruce facilities.

b) The question identifies the wrong line numbers in Ex. C2-T1-S2, Tables 1 and 2. The references should be line 7 of Ex. C2-T1-S2, Table 1 (prescribed facilities) and line 8 of Ex. C2-T1-S1, Table 2 (Bruce facilities). The total amount paid by OPG in any particular year is reflected in the line described as "Expenditures for Used Fuel, Waste Management & Decommissioning." The expenditure for prescribed facilities is found at Ex. C2-T1-S2, Table 1, line 7 and the expenditure for the Bruce facilities is found at Ex. C2-T1-S2, Table 2, line 8. These expenditures are funded from the segregated funds and from OPG's operations.

c) The total disbursements out of the segregated funds are presented in line 16 of Table 1 and line 17 in Table 2.

d) OPG assumes that the reference to "IR 3 b)" in the question is incorrect and the correct reference is VECC Interrogatory 34c). The Ontario Nuclear Funds Agreement ("ONFA") reference plan is a long-term plan prepared to ensure sufficient funds are accumulated to pay for the lifecycle costs of managing nuclear waste and decommissioning the nuclear generating stations and support facilities. It is updated and approved by Ontario Financing Authority ("OFA") every five years. Based on the ONFA Reference Plan, OPG develops a business plan each year to govern annual disbursements. The annual business plan incorporates the program funding requirements based on the latest information, some of which may not be captured in the ONFA Reference Plan. The business plan is subject to annual review and approval by the OFA. Once approved, the business plan determines the allowed level of expenditures for each ONFA-funded program in the year. OFA approval is required for any spending above budgeted levels.

Every five years, each waste program is re-estimated in detail and that work forms the basis of the liability calculation for ONFA and is used to update the asset retirement obligation ("ARO") for OPG. The re-estimation takes into account work done to date, under/over expenditures versus budget, plans for future work and future waste volume estimates.

e) The earnings on the segregated funds forecast at line 14 of Table 1 and line 15 of Table 2 are forecast based on the assumption of a 5.15 per cent return and adjusted for disbursements and contributions during the year.

The calculation of the forecast earnings of $280.6M for 2011 at line 14 of Table 1 is as follows:

Earnings on Opening Balance	**($M)**	**Reference**
2011 Segregated Funds Opening Balance (Table 1, Line 11)	5,399.6	
Earnings Based on Assumed Rate of Return 5.15 per cent	278.1	A
Earnings on Net Inflow during 2011		
2011 Forecasted Contributions (Table 1, line 15)	145.0	
2011 Forecasted Disbursements (Table 1, line 16)	(46.6)	
Net Inflow Forecasted for 2011	98.4	
Earnings on Net Inflow Forecasted for 2011 (Note 1)	2.5	B
Total Forecasted Earnings for 2011 (A+B)	**280.6**	Table 1, line 14

[Note 1: It is assumed that the contributions and disbursements occur at the middle of the year. Thus, the earnings on the net inflow is $98.4M x 50% x 5.15% = $2.5M.]

f) The contributions to the segregated funds forecast at line 15 in Table 1 and line 16 in Table 2 reconcile directly with the funding requirements on an aggregated basis set out at Ex. C2-T1-S1, Attachment 1, Table 2.

Two subsections of the ONFA (3.61 and 4.61) govern the updating of contributions. In summary the main conditions/causes that would require the updating of the contributions schedule of the segregated funds are:

- A new or amended Reference Plan becomes an Approved Reference Plan (approved by the Province of Ontario).

- The Province of Ontario makes a payment into the segregated funds.

- A determination by OPG or the Province of Ontario that the segregated funds are subject to tax of any nature or having become subject to such tax, is no longer subject to such tax.

- The Province of Ontario approves or is deemed to have approved a CNSC Reconciliation Statement.

The only known cause of future change is the upcoming reference plan update which is at an early stage of development and is not expected to be approved by the Province of Ontario until the end of 2011.

Numbers may not add due to rounding.

Table 1
Prescribed Facilities - Nuclear Segregated Funds Balance Section Only ($M)
Years Ending December 31, 2008, 2009, 2010, 2011 and 2012

Line No.	Description	Note	2008 Actual[1]	2009 Actual	2010 Budget	2011 Plan	2012 Plan
			(a)	(b)	(c)	(d)	(e)
	NUCLEAR SEGREGATED FUNDS BALANCE						
1	**Opening Balance**	2	4,853.0	4,584.2	5,058.7	5,399.6	5,778.5
2	**Reallocation Adjustment**	3	(23.1)	0.0	0.0	0.0	0.0
3	**Adjusted Opening Balance** (line 1 + line 2 or line 4 + line 5 + line 6)		4,829.9	4,584.2	5,058.7	5,399.6	5,778.5
4	**Used Fuel Fund (Provincial Guarantee Portion)**		2,085.1	2,259.9	2,437.3	2,627.0	2,824.7
5	**Used Fuel Fund (Non Guarantee Portion)**		0.0	0.0	14.2	85.1	154.4
6	**Decommissioning Fund**		2,744.8	2,324.3	2,607.2	2,687.5	2,799.4
7	**Earnings (Losses)** (line 8 + line 9 + line 10)		(242.1)	415.5	262.6	280.6	299.7
8	**Used Fuel Fund (Provincial Guarantee Portion)**		122.3	78.2	127.1	136.9	146.9
9	**Used Fuel Fund (Non Guarantee Portion)**		0.0	0.0	2.5	6.0	9.5
10	**Decommissioning Fund**		(364.3)	337.3	132.9	137.7	143.3
11	**Contributions** (line 12 + line 13 + line 14)		58.9	124.7	150.2	145.0	140.4
12	**Used Fuel Fund (Provincial Guarantee Portion)**		58.9	110.5	81.7	81.7	78.7
13	**Used Fuel Fund (Non Guarantee Portion)**		0.0	14.2	68.4	63.2	61.7
14	**Decommissioning Fund**		0.0	0.0	0.0	0.0	0.0
15	**Disbursements** (line 16 + line 17 + line 18)		(62.5)	(65.7)	(71.9)	(46.6)	(58.0)
16	**Used Fuel Fund (Provincial Guarantee Portion)**		(6.4)	(11.3)	(19.3)	(20.8)	(22.5)
17	**Used Fuel Fund (Non Guarantee Portion)**		0.0	0.0	0.0	0.0	0.0
18	**Decommissioning Fund**		(56.2)	(54.3)	(52.6)	(25.8)	(35.5)
19	**Closing Balance** (line 20 + line 21 + line 22)		4,584.2	5,058.7	5,399.6	5,778.5	6,160.7
20	**Used Fuel Fund (Provincial Guarantee Portion)** (line 4 + line 8 + line 12 + line 16)		2,259.9	2,437.3	2,627.0	2,824.7	3,027.9
21	**Used Fuel Fund (Non Guarantee Portion)** (line 5 + line 9 + line 13 + line 17)		0.0	14.2	85.1	154.4	225.6
22	**Decommissioning Fund** (line 6 + line 10 + line 14 + line 18)		2,324.3	2,607.2	2,687.5	2,799.4	2,907.2

Notes:
1 2008 values are annual amounts.
2 2008 amount per EB-2007-0905 Payment Amounts Order, Appendix A Table 8.
3 See Ex. C2-T1-S2 Table 1, Note 5.

Numbers may not add due to rounding.

Table 2
Bruce Facilities - Nuclear Segregated Funds Balance Section Only ($M)
Years Ending December 31, 2008, 2009, 2010, 2011 and 2012

Line No.	Description	Note	2008 Actual[1]	2009 Actual	2010 Budget	2011 Plan	2012 Plan
			(a)	(b)	(c)	(d)	(e)
	NUCLEAR SEGREGATED FUNDS BALANCE						
1	**Opening Balance**	2	4,410.0	4,625.1	5,187.2	5,522.6	5,879.9
2	**Reallocation Adjustment**	3	23.1	0.0	0.0	0.0	0.0
3	**Adjusted Opening Balance** (line 1 + line 2 or line 4 + line 5 + line 6)		4,433.1	4,625.1	5,187.2	5,522.6	5,879.9
4	**Used Fuel Fund (Provincial Guarantee Portion)**		2,106.4	2,624.1	2,902.0	3,066.3	3,237.2
5	**Used Fuel Fund (Non Guarantee Portion)**		0.0	0.0	16.5	97.7	174.6
6	**Decommissioning Fund**		2,326.7	2,001.0	2,268.7	2,358.6	2,468.1
7	**Earnings (Losses)** (line 8 + line 9 + line 10)		(183.9)	386.2	268.8	286.2	304.6
8	**Used Fuel Fund (Provincial Guarantee Portion)**		129.7	92.7	149.8	158.2	167.0
9	**Used Fuel Fund (Non Guarantee Portion)**		0.0	0.0	2.9	6.8	10.6
10	**Decommissioning Fund**		(313.6)	293.5	116.2	121.2	126.9
11	**Contributions** (line 12 + line 13 + line 14)		395.0	214.1	113.9	105.5	99.7
12	**Used Fuel Fund (Provincial Guarantee Portion)**		395.0	197.7	35.5	35.5	35.5
13	**Used Fuel Fund (Non Guarantee Portion)**		0.0	16.5	78.4	70.0	64.2
14	**Decommissioning Fund**		0.0	0.0	0.0	0.0	0.0
15	**Disbursements** (line 16 + line 17 + line 18)		(19.0)	(38.2)	(47.3)	(34.4)	(31.2)
16	**Used Fuel Fund (Provincial Guarantee Portion)**		(7.0)	(12.4)	(21.1)	(22.8)	(24.6)
17	**Used Fuel Fund (Non Guarantee Portion)**		0.0	0.0	0.0	0.0	0.0
18	**Decommissioning Fund**		(12.1)	(25.8)	(26.3)	(11.6)	(6.6)
19	**Closing Balance** (line 20 + line 21 + line 22)		4,625.1	5,187.2	5,522.6	5,879.9	6,252.9
20	**Used Fuel Fund (Provincial Guarantee Portion)** (line 4 + line 8 + line 12 + line 16)		2,624.1	2,902.0	3,066.3	3,237.2	3,415.1
21	**Used Fuel Fund (Non Guarantee Portion)** (line 5 + line 9 + line 13 + line 17)		0.0	16.5	97.7	174.6	249.4
22	**Decommissioning Fund** (line 6 + line 10 + line 14 + line 18)		2,001.0	2,268.7	2,358.6	2,468.1	2,588.4

Notes:
1 2008 values are annual amounts.
2 2008 amount per EB-2007-0905 Payment Amounts Order, Appendix A Table 8
3 See Ex. C2-T1-S2 Table 2, Note 7.

VECC Interrogatory #035

Ref: Ex. C2-T1-S2, Table 4

Issue Number: 8.2
Issue: Is the revenue requirement amount for nuclear liabilities related to nuclear waste management and decommissioning costs appropriately determined?

Interrogatory

Please provide a calculation in the manner of Table 4 for the year 2010. Please describe if and in what manner the 2010 revenue impact of the Darlington Refurbishment project is credited to ratepayers. If it is not credited to ratepayers, please explain why OPG believes it is appropriate for it to retain the surplus funds associated with the impacts of the project on the revenue requirement associated with Nuclear Liabilities.

Response

Attachment 1 is a calculation in the manner of Ex. C2-T1-S2, Table 4 for 2010 which provides the revenue requirement impact of the Darlington Refurbishment project. This table excludes the impacts related to the Bruce facilities as they are already captured in the Bruce Lease Variance Account.

There is no variance account in place that would provide for the return of these amounts to ratepayers. Returning these amounts to ratepayers without a variance account in place would amount to retroactive ratemaking. On this basis, OPG believes it is appropriate that it retain these amounts.

OPG notes that the impact of the Darlington Refurbishment project is one of many elements of costs and revenues for 2010 which do not have variance account treatment. OPG also notes that it has forecast that it will earn a return on equity (“ROE”) of 7.8 per cent (Ex. C1-T1-S1, page 3) during 2010, which is less than OPG’s approved ROE of 8.65 per cent.

Numbers may not add due to rounding.

Table 4
Revenue Requirement Impact of Adjustment to Nuclear Liabilities Due To Darlington Refurbishment Project ($M)
Years Ending December 31, 2010

Line No.	Description	Note or Reference	With Darlington Refurbishment 2010	Note or Reference	Without Darlington Refurbishment 2010	(a)-(b) Revenue Requirement Impact
			(a)		(b)	(c)
	PRESCRIBED FACILITIES					
1	**Depreciation of Asset Retirement Costs**	Note 1, C2-T1-S2 Table 1	33.2	Note 1, C2-T1-S2 Table 1	123.8	(90.6)
2	**Used Fuel Storage and Disposal Variable Expenses**	C2-T1-S2 Table 1	23.0	Note 2	19.5	3.5
3	**Low & Intermediate Level Waste Management Variable Expenses**	C2-T1-S2 Table 1	1.1	Note 2	1.0	0.0
	Return on ARC in Rate Base:					
4	**Accretion Rate**	C1-T1-S1 Tables 3	86.9	Note 2, 3	58.0	28.9
5	**Weighted Average Cost of Capital**	C2-T1-S2 Table 5	0.0	Note 3	0.0	0.0
6	**Total Revenue Requirement Impact - Prescribed Facilities**		144.2		202.3	(58.1)
	(line 1 + line 2 + line 3 + line 4 + line 5)					

Notes:

1 The 2009 Depreciation Expense would remain unchanged for 2010 to 2012 in the absence of the changes associated with the Darlington Refurbishment Project.

Facilities	2009	2010	(b)-(a) Annual Impact
	(a)	(b)	(c)
Prescribed	123.8	33.2	(90.6)

2 "Without Darlington Refurbishment" numbers are derived from a base case calculation of Asset Retirement Obligation (ARO) and Asset retirement Costs (ARC) before the Darlington ARO adjustment, and are presented for illustrative purposes.

3 The table below presents the revenue requirement impact of accretion rate without the Darlington Refurbishment Project. If the forecast of unfunded nuclear liabilities (total ARO less segregated funds) is lower than the unamortized ARC, then that difference is assumed to be the funded portion of the unamortized ARC. The funded portion earns a return at the weighted average cost of capital (WACC). During the tes period, the unamortized ARC is less than UNL, so none of the unamortized ARC earns the WACC.

Line No.	Description	(2010 amount from Ex. C2-T1-S2 Table 1, line 22, col. (g)) Asset Retirement Cost Opening Balance	(Ex. C2-T1-S2 Table 1 line 26, col. (f)) Depreciation Expense	(a)-(b) Closing Balance	((a)+(c))/2 Gross Plant Rate Base Amount	Average Accretion Rate	(d) x (e) Pre-Tax Revenue Requirement
		(a)	(b)	(c)	(d)	(e)	(f)
	2010 Budget:						
1	Adjustment for Lesser of UNL or ARC	1,098.0	123.8	974.2	1,036.1	5.60%	58.0
	2011 Plan:						
2	Adjustment for Lesser of UNL or ARC	974.2	123.8	850.4	912.3	5.60%	51.1
	2012 Plan:						
3	Adjustment for Lesser of UNL or ARC	850.4	123.8	726.6	788.5	5.60%	44.2

VECC Interrogatory #036

Ref: Ex. C2-T1-S2, Table 5

Issue Number: 8.2
Issue: Is the revenue requirement amount for nuclear liabilities related to nuclear waste management and decommissioning costs appropriately determined?

Interrogatory

a) Please reissue Table 5, including the Board approved (as opposed to actual) numbers for 2008, 2009, and 2010, so as to illustrate what was included in rates for 2008, 2009 and 2010. (For example, it appears to VECC that the most significant difference between the actuals that are included in the existing Table 5 and the board approved equivalent for those years is the substitution of actual earnings (losses) on the segregated funds for the forecast that was included in rates, both in the direct calculation of the Revenue Requirement for the Bruce facilities in Table 5 and in the calculation of the unfunded nuclear liability in Table 1, which may affect the calculations at lines 4 and 5 of Table 5.)

b) Please provide a table setting out OPG's actual annual cash outlays related to its nuclear waste management and decommissioning obligation in a manner similar to Table 5. (It appears to VECC that developing such a table would include lines 2, 3, 8 and 9 from Table 5, plus line 15 from Table 1 and line 16 from Table 2.)

Response

a) See Attachment 1.

b) As explained in Ex. L-14-031 part b) OPG does not record or track the expense lines 2, 3, 8, and 9 in Ex. C2-T1-S2, Table 5 by funding sources as this is not required for accounting purposes. Therefore, to illustrate OPG's actual, budget and plan annual cash outlays related to its nuclear waste management and decommissioning obligation, line 7 and line 8 (Expenditures for Used Fuel, Waste Management & Decommissioning) and line 15 and line 16 (Contributions) from Ex. C2-T1-S2 Table 1 and Table 2 respectively were used instead of the line numbers in Table 5 referred to by VECC in part b) above. As described in Notes 4 and 6 in Tables 1 and 2, respectively "Expenditures incurred by OPG relate to both short-term programs (Used Fuel Storage, L&ILW Storage) and long-term programs (Used Fuel Disposal, L&ILW Disposal and Decommissioning), whereas disbursements from Nuclear Segregated Funds cover long-term programs only". Therefore, the difference between the expenditures and Ontario Nuclear Funds Agreement ("ONFA") disbursements is OPG's cash outlays for the short-term programs. Contributions into the nuclear segregated funds represent OPG's cash outlays for the long-term programs. Therefore, the sum of expenditures less ONFA disbursements and contributions into the nuclear segregated funds in any particular year would represent

OPG's annual cash outlays related to its nuclear waste management and decommissioning obligation. These are shown in Attachment 2.

Numbers may not add due to rounding.

ATTACHMENT 1

Revenue Requirement Impact of OPG's Nuclear Liabilities ($M)
Years Ending December 31, 2008, 2009, 2010, 2011 and 2012
Amounts in Evidence for Years Ending December 31, 2008, and 2009

Line No.	Description	2008 - 2009 Board Reference	2008 Evidence nine months	2009 Evidence	2010 Budget	2011 Plan	2012 Plan
			(a)	(b)	(c)	(d)	(e)
			Note 1	Note 1	Note 2	Note 2	Note 2
	PRESCRIBED FACILITIES		Note 3				
1	**Depreciation of Asset Retirement Costs**		90.0	120.0	33.2	33.2	33.2
2	**Used Fuel Storage and Disposal Variable Expenses**	Note 4	16.0	23.0	23.0	26.6	28.5
3	**Low & Intermediate Level Waste Management Variable Expenses**	Note 4	0.0	0.0	1.1	0.8	0.8
	Return on Rate Base:						
4	**Accretion Rate**		44.5	56.7	86.9	85.0	83.1
5	**Weighted Average Cost of Capital**	Note 5	6.7	7.8	0.0	0.0	0.0
6	**Total Revenue Requirement Impact**		157.2	207.5	144.2	145.7	145.6
	(line 1 + line 2 + line 3 + line 4 + line 5)						
	BRUCE FACILITIES						
7	**Depreciation of Asset Retirement Costs**		36.0	48.0	28.5	28.5	28.5
8	**Used Fuel Storage and Disposal Variable Expenses**	Note 4	19.0	17.0	16.7	17.0	24.0
9	**Low & Intermediate Level Waste Management Variable Expenses**	Note 3	0.0	0.0	0.9	0.8	0.7
10	**Accretion**		201.0	282.0	282.4	294.5	307.2
11	**Less: Segregated Fund Earnings (Losses)**		176.0	262.0	268.8	286.2	304.6
12	**Return on Rate Base**	Note 2	0.0	0.0	0.0	0.0	0.0
13	**Total Revenue Requirement Impact**		80.0	85.0	59.6	54.5	55.8
	(line 7 + line 8 + line 9 + line 10 - line 11 + line 12)						

Notes:

1. The OEB did not approve the amounts for April 1, 2008 to December 31, 2009 with the excpetion of the accretion rate amounts on Line 4 (Order Appendix A, Table 4b) for 2008 and 5b) for 2009, and the depreciation amount was accepted (Decision, Page 88). The amounts presented are reflected in a Table on Page 69 of the Decision, Section 5.1.3 Financial Reporting.
2. Evidence references for the 2010 to 2012 period are provided in Ex C2-1-2 Table 5.
3. The Board set payment amounts effective April 1, 2008; therefore the 2008 Evidence amounts are provided for the nine month period April 1, 2008 to December 31, 2008 only. Ex. C2-T1-S2 Table 5 includes 12 months for 2008.
4. The 2008 and 2009 Evidence amounts are for nuclear waste variable expenses. Low and Intermediate Waste Management Variable Expenses have therefore been included with Used Fuel Storage and Disposal Variable Expenses.
5. If UNL is less than ARC then the funded ARC earns WACC effective April 1, 2008.

Year	ARC ($M) Order App A Table 4b note 6 Order App A Table 5b note 5	UNL ($M) Ord App A Tbl 4b note 6 Ord App A Tbl 5b note 5	ARC-UNL ($M) (a)-(b)	Annual WACC	Return* ($M) (c)x(d)	WACC Reference
	(a)	(b)	(c)	(d)	(e)	
2008 Post April 1	1,227.0	1,060.3	166.7	5.37%	6.7	Note 2
2009	1,121.0	1,012.9	108.1	7.19%	7.8	Note 2
2010	1,556.5	1,783.5	(227.0)	3.94%	0.0	Note 2
2011	1,523.3	1,695.7	(172.4)	7.56%	0.0	Note 2
2012	1,490.1	1,620.8	(130.7)	7.59%	0.0	Note 2

Numbers may not add due to rounding.

Annual Cash Outlays Related to OPG's Nuclear Waste Management and Decommissioning Obligation ($M)
Years Ending December 31, 2008, 2009, 2010, 2011 and 2012

Line No.	Description	Note or Reference	2008 Actual	2009 Actual	2010 Budget	2011 Plan	2012 Plan
			(a)	(b)	(c)	(d)	(e)
	PRESCRIBED FACILITIES						
	Cash Outlays for Long-Term Programs	Note 1					
1	**Contributions to Nuclear Segregated Funds**	C2-T1-S2 Table 1, Line 15	58.9	124.7	150.2	145.0	140.4
	Cash Outlays for Short-Term Programs	Note 2					
2	**Expenditures for Used Fuel, Waste Management & Decommissioning**	C2-T1-S2 Table 1, Line 7	122.6	129.3	157.1	127.3	126.6
3	**Less: Disbursements from Nuclear Segregated Funds**	C2-T1-S2 Table 1, Line 16	62.5	65.7	71.9	46.6	58.0
4	**Subtotal** (Line 2 - Line 3)		60.1	63.6	85.2	80.7	68.6
5	**Total Cash Outlays** (line 1 + line 4)		119.0	188.3	235.4	225.6	209.0
	BRUCE FACILITIES						
	Cash Outlays for Long-Term Programs	Note 1					
6	**Contributions to Nuclear Segregated Funds**	C2-T1-S2 Table 2, Line 16	395.0	214.1	113.9	105.5	99.7
	Cash Outlays for Short-Term Programs (Line 8 - Line 9)	Note 2					
7	**Expenditures for Used Fuel, Waste Management & Decommissioning**	C2-T1-S2 Table 2, Line 8	72.4	62.0	76.8	85.2	85.9
8	**Less: Disbursements from Nuclear Segregated Funds**	C2-T1-S2 Table 2, Line 17	19.0	38.2	47.3	34.4	31.2
9	**Subtotal** (Line 7 - Line 8)		53.3	23.8	29.5	50.8	54.7
10	**Total Cash Outlays** (line 6 + line 9)		448.3	237.9	143.3	156.3	154.3
11	**OPG's Annual Cash Outlays** (line 5 + line 10)		567.3	426.1	378.7	381.9	363.3

Notes
1 OPG's Long-Term Nuclear Waste Management and Decommissioning Programs are Used Fuel Disposal, Low and Intermediate Level Waste Disposal, and Decommissioning.
2 OPG's Short-Term Nuclear Waste Management and Decommissioning Programs are Used Fuel Storage and Low and Intermediate Level Waste Storage.