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February 14, 2017

VIA RESS AND COURIER

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
P.O. Box 2319
2300 Yonge Street, 27th Floor
Toronto, ON M4P 1E4

Dear Ms. Walli:

Re: EB-2016-0152 – Supplemental Nuclear Liabilities Evidence

Enclosed is supplemental evidence related to nuclear liabilities in EB-2016-0152, as ordered by the OEB in Procedural Order No. 6. OPG has submitted this document through the Regulatory Electronic Submissions System and is providing fourteen (14) paper copies.

Yours truly,

[Original signed by]

Barbara Reuber

cc: John Beauchamp (OPG) via e-mail
Charles Keizer (Torys) via e-mail
Crawford Smith (Torys) via e-mail

NUCLEAR WASTE MANAGEMENT AND DECOMMISSIONING – SUPPLEMENTARY INFORMATION

1.0 PURPOSE

The purpose of this evidence is to provide supplementary information related to OPG's nuclear waste management and decommissioning liabilities ("nuclear liabilities") as directed by the OEB in Procedural Order No. 6.

2.0 OVERVIEW

In Ex. C2-1-1 of the pre-filed evidence dated May 27, 2016, OPG submitted the forecast amounts of nuclear liabilities costs included in the proposed revenue requirements for 2017 to 2021. Those amounts were determined using the methodology approved by the OEB in EB-2007-0905, EB-2010-0008 and EB-2013-0321, and reflected the approved 2012 to 2016 Ontario Nuclear Funds Agreement ("ONFA") Reference Plan (the "2012 ONFA Reference Plan") then in effect.

On December 20, 2016, the Province of Ontario (the "Province") approved the 2017 to 2021 ONFA Reference Plan, effective January 1, 2017 (the "2017 ONFA Reference Plan"). The 2017 ONFA Reference Plan resulted in an overall reduction in OPG's nuclear liabilities and is expected to reduce overall segregated fund contributions, mainly owing to a proposed new, more cost effective container design and engineered barrier concept to house used nuclear fuel for disposal, as well as a later planned in-service date for Canada's proposed used fuel deep geologic repository.

In December 2016, OPG filed Ex. N1-1-1 Impact Statement, which updated the pre-filed evidence for certain material changes, including those contained in OPG's 2017-2019 Business Plan as approved by the Board of Directors in November 2016. These changes included an updated forecast of 2017-2021 nuclear liabilities costs reflecting the projected impact of the 2017 ONFA Reference Plan, and the regulatory income tax impact of changes to 2017-2021 forecast cash expenditures on nuclear liabilities for the prescribed facilities and corresponding disbursements from the segregated funds.

The update for the 2017-2021 forecast nuclear liabilities costs resulted in a net reduction of $271.2M in after-tax amounts sought for recovery, relative to the pre-filed evidence, consisting of an increase of $279.6M for the prescribed facilities and a decrease of $550.8M for the Bruce facilities. Additionally, the update for 2017-2021 forecast cash expenditures on nuclear liabilities and associated segregated fund disbursements resulted in a reduction of $124.4M in regulatory income tax amounts sought for recovery with respect to the prescribed facilities.[1] These updated revenue requirement impacts were determined using the same methodology as in the pre-filed evidence. This methodology, including income tax impacts, is discussed in section 3.3 below.

The updated after-tax revenue requirement impact of the nuclear liabilities for 2017-2021 per Ex. N1-1-1, including income tax effects associated with cash expenditures and segregated fund disbursements, is $786.4M for the prescribed facilities and $1,021.6M for the Bruce facilities, as shown in Chart 1 below.

[1] There were no changes in the proposed revenue requirements on account of changes in nuclear liabilities expenditures and associated segregated fund disbursements attributed to the Bruce facilities because they resulted in equal and offsetting changes in the current and deferred income tax expense components of Bruce Lease net revenues, with no net effect, as discussed in section 3.3.2.

Chart 1

Summary of Revenue Requirement Impact of Nuclear Liabilities ($M)

Line No.	Description	Reference	2017 Plan	2018 Plan	2019 Plan	2020 Plan	2021 Plan	Total
	Prescribed Facilities							
1	**Pre-Tax Revenue Requirement Impact**	Ex. N1-1-1 Table 2, line 6	167.1	162.6	173.4	158.2	89.1	750.5
2	**Regulatory Income Tax Impact of Nuclear Liabilities Costs and Segregated Fund Contributions**	Ex. N1-1-1 Table 2, line 7	55.7	54.2	57.8	52.7	29.7	250.2
3	**Revenue Requirement Impact of Nuclear Liabilities Costs** *(Ex. N1-1-1 Table 2, line 8)*	line 1 + line 2	222.8	216.8	231.2	211.0	118.8	1,000.6
4	**Regulatory Income Tax Impact of Nuclear Liabilities Expenditures and Segregated Fund Disbursements**	Ex. N1-1-1 Chart 3.2.1, line 17	(44.4)	(47.4)	(37.5)	(43.9)	(41.1)	(214.2)
5	**Total Revenue Requirement Impact - Prescribed Facilities**	line 3 + line 4	178.4	169.4	193.8	167.1	77.7	786.4
	Bruce Facilities							
6	**Pre-Tax Revenue Rrequirement Impact (Impact on Bruce Lease Net Revenues)**	Ex. N1-1-1 Table 2, line 15	156.4	150.4	153.1	157.7	148.6	766.2
7	**Regulatory Income Tax Impact**	Ex. N1-1-1 Table 2, line 16	52.1	50.1	51.0	52.6	49.5	255.4
8	**Total Revenue Requriement Impact - Bruce Facilities** *(Ex. N1-1-1 Table 2, line 17)*	line 6 + line 7	208.6	200.5	204.1	210.3	198.1	1,021.6
	Total Nuclear Liabilities							
9	**Total Pre-Tax Revenue Requirement Impact**	line 1 + line 6	323.5	313.0	326.5	315.9	237.7	1,516.7
10	**Total Regulatory Income Tax Impact**	line 2 + line 4 + line 7	63.5	56.9	71.4	61.4	38.1	291.3
11	**Total Revenue Requirement Impact - Prescribed and Bruce Facilities**	line 9 + line 10	387.0	369.9	397.9	377.4	275.8	1,808.0

As at December 31, 2016, the Decommissioning Segregated Fund ("DF") was overfunded at approximately 121% and the Used Fuel Segregated Fund ("UFF") was marginally overfunded at less than 1%, relative to the corresponding funding obligations per the 2017 ONFA Reference Plan. As reflected in Ex. N1-1-1, OPG expects this to result in overall zero required contributions to both funds until the next ONFA reference plan is approved. OPG submitted a proposed contribution schedule based on the 2017 ONFA Reference Plan to the Province on January 30, 2017 and is currently awaiting the Province's approval.

Consistent with OPG's 2017-2019 Business Plan, Ex. N1-1-1 reflected a zero contribution to the segregated funds for each of prescribed facilities and Bruce facilities starting in 2017. However, although each of the segregated funds is fully funded in aggregate, the portion of the 2017 ONFA Reference Plan funding obligations related to the prescribed facilities is underfunded, while the portion related to the Bruce facilities is overfunded.[2] OPG expects that, over time, the funds will need to be fully funded at a station level, consistent with the intent of the ONFA. As such, OPG's proposed contribution schedule based on the 2017

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[2] Specifically, the prescribed facilities' portion of the DF is underfunded and the Bruce facilities' portion is overfunded; the reverse is true for the UFF.

ONFA Reference Plan included rebalancing of each of the funds via offsetting positive and negative station-level contribution amounts. If approved by the Province, this will result in overall positive prescribed facilities' contributions and overall negative Bruce contributions over the 2017-2021 period, which, under the current methodology, will have the effect of reducing the after-tax revenue requirement impact relative to the impacts outlined in Ex. N1-1-1.[3]

Any differences between the projected impacts and the final impacts arising from the 2017 ONFA Reference Plan and associated approved contribution schedule for the prescribed facilities will be recorded in the Nuclear Liability Deferral Account. Any such differences related to the Bruce facilities will be recorded in the Bruce Lease Net Revenues Variance Account.

Prior to 2017, OPG made overall contributions to the UFF every quarter since the fund's inception. OPG has not made contributions to the DF, as it has been fully funded or overfunded each time a new contribution schedule was established based on an approved ONFA reference plan, following a substantial contribution to the fund made by the Province in 2003. OPG may be required to make contributions to either or both funds as a result of future ONFA reference plans, depending on asset returns over time and changes in underlying funding obligations due to changes in cost estimates.

The remainder of this evidence is structured as follows:

- Section 3.0 provides summary background on OPG's nuclear waste management and decommissioning obligations, an overview of the ONFA, and a summary description of the revenue requirement methodologies for the recovery of nuclear liabilities, for the

[3] The reduction in the revenue requirement impacts would arise for the portion related to the prescribed facilities, due to a reduction in income tax impacts reflecting the tax deductible nature of the segregated fund contributions, as discussed in section 3.3.1. This would be partially offset by the reduction in Bruce Lease net revenues due to lower segregated fund earnings a result of lower segregated fund contributions. A change in contributions does not alter the related income tax expense component of Bruce Lease net revenues because it would result in equal and offsetting changes in the current and deferred income tax expense components, with no net effect, as discussed in section 3.3.2.

prescribed facilities and the Bruce facilities, approved in previous OEB proceedings and applied by OPG in this Application.

- Section 4.0 provides additional information related to the funded status of the segregated funds, including the actual funded status as at December 31, 2016 and the forecast for 2017 to 2021, and discusses the interaction between the current revenue requirement methodology and the funded status.
- Section 5.0 provides a summary of historical amounts recovered from ratepayers for nuclear liabilities costs and compares them to amounts contributed by OPG to the segregated funds and expended on nuclear liabilities programs not eligible for reimbursements from the segregated funds. The section also discusses why a change in the funded status of the funds or contribution levels is not a trigger for revisiting the revenue requirement methodology.

3.0 BACKGROUND

3.1 Obligations for Nuclear Waste and Decommissioning

OPG is responsible for the ongoing and long-term management of radioactive wastes, including used nuclear fuel and less radioactive material, categorized as low-level and intermediate-level waste (“L&ILW”), generated over the life of its nuclear facilities, and for the decommissioning of its nuclear generating and waste management facilities after their shutdown. These obligations include used fuel and L&ILW generated at the Bruce stations and the decommissioning of the Bruce stations. The five programs used to track the obligation are described in Ex. C2-1-1, section 3.1.1. OPG typically performs a comprehensive update of the cost estimates for the nuclear liabilities every five years, through the ONFA reference plan update process outlined in section 3.2. Given the long-term duration of the nuclear liabilities programs and the evolving technology to handle nuclear waste, there is inherent uncertainty surrounding the cost estimates and economic indices underpinning the nuclear liabilities, which may increase or decrease over time as plans and assumptions are refined and economic conditions change.

In accordance with US GAAP, OPG recognizes an accounting obligation for its nuclear liabilities on the balance sheet, known as an asset retirement obligation (“ARO”). The ARO represents the present value of the committed portion of the costs for OPG's nuclear liabilities. The committed costs include the fixed cost components of the five programs referenced above as well as the lifetime variable costs for waste generated to date. The baseline cost estimates underpinning these costs are those developed through the ONFA reference plan update process.

An overall objective of the financial accounting treatment of AROs is to reflect the costs in the periods they are incurred, by matching them to the benefits derived from the asset. ARO costs are typically capitalized as a component of property, plant and equipment on the balance asset and depreciated over the useful life of the stations, in order to match the incurrence of these costs to the generation output of the station. The capitalized costs are known as asset retirement costs ("ARC"). As such, a change in the ARO as a result of changes in baseline cost estimates or assumptions typically results in an equal amount being recorded as an increase or decrease to the property, plant and equipment balances for the corresponding stations, to be depreciated over their remaining useful lives.

The initial value and each subsequent adjustment to the ARO are known as tranches. In accordance with US GAAP, each tranche is calculated using a discount rate determined at the time of the adjustment and is not revalued for subsequent changes in the discount rate. [4] Station-level continuities of ARO balances are maintained.

Quantities of used fuel and L&ILW produced over time give rise to incremental committed costs, which are recorded as increases to the ARO. These costs, expressed in present value terms, are known as used fuel variable and L&ILW variable expenses, and are charged to the income statement as incurred, in the period the additional used fuel and L&ILW is generated.[5]

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[4] See Ex. L-8.2-1 Staff-207 and Ex. N1-1-1, section 3.2.2 for further details on the determination of the ARO discount rate.
[5] See Ex. N1-1-1, p. 17, footnote 14 for further details on the determination of the discount rate applied to calculate variable expenses.

Being a present value obligation, the ARO increases due to the passage of time, which gives rise to accretion expense recognized in OPG's income statement.

The difference between the ARO and the segregated fund assets recorded on OPG's balance sheet represents the unfunded nuclear liability ("UNL"), as defined under the OEB-approved revenue requirement methodology for the prescribed facilities, discussed in section 3.3.1.

Further details on the financial accounting treatment of OPG's nuclear liabilities can be found in Ex. C2-1-1, section 3.1.1.

3.2 Ontario Nuclear Funds Agreement

The ONFA, a bilateral agreement between OPG and the Province, sets out OPG's funding obligations for the long-term programs of lifecycle nuclear liabilities, through contributions to the DF and the UFF. These funds are set aside in segregated accounts for the express purpose of funding the future costs of the underlying obligations. The Province established the ONFA as the funding mechanism for OPG's nuclear liabilities consistent with a growing trend in international jurisdictions to place money aside for the long-term management of nuclear liabilities, in recognition of the fact that these liabilities will be discharged many years after the nuclear generating stations have closed. The DF was established to fund the lifecycle costs of nuclear decommissioning and long-term L&ILW management. The UFF was established to fund the lifecycle costs of long-term nuclear used fuel management.[6] Being a funding mechanism, ONFA does not have attribution of nuclear liabilities costs to appropriate periods over the station's productive life as one of its objectives. The ONFA was executed in 2003, but includes calculations and contributions effective as of OPG's inception in 1999.

The costs for used fuel management and L&ILW storage costs incurred during the stations' operating lives are not funded under the ONFA and cannot be drawn from the segregated

[6] Refer to Ex. C2-1-1, p. 5, footnote 1 for the specific definition of the funding boundaries for each of the segregated funds.

funds. As these costs, referred to as “internally funded”, are part of OPG’s legal obligation for nuclear waste, they are included in the ARO and are funded from OPG’s operating cash flow.

OPG's station-level quarterly contributions to the segregated funds are determined periodically, with reference to the funding liabilities contained in an approved ONFA reference plan in effect and corresponding segregated fund balances at a point in time. Prescribed funding formulae and rules set out in the ONFA are applied to calculate the contribution amounts based on the difference between the funding liabilities and fund balances. The discount rate used to calculate the funding liabilities is determined in accordance with the ONFA. ONFA reference plans, including all underlying cost estimates and assumptions, are required to be updated every five years or whenever there is a significant change as determined under the ONFA. Station-level continuities of the funding liabilities and segregated fund balances are maintained in accordance with the ONFA. The funded status of the funds at any point in time represents the difference between the funding obligations per an approved ONFA reference plan then in effect and the value of the segregated funds.

Cost estimates and underlying operational, economic and other planning assumptions reflected in the ONFA funding liabilities are determined through a comprehensive process that draws from a variety of sources, including the use of independent third party experts in different fields. Cost estimates and underlying assumptions are reviewed by the Province and their technical consultants prior to approval of ONFA reference plans. In addition to the funding liabilities for ONFA-funded costs, an approved ONFA reference plan contains cost estimates for internally funded costs, which are also subject to review by the Province.

The ONFA contains several specific features designed to reduce risk for future generations of Ontarians, by ensuring that sufficient funds are available to pay for nuclear liabilities. First, the segregated funds are held in third-party custodial accounts, externally administered and subject to extensive reporting controls. Second, OPG cannot withdraw monies from the funds, unless the withdrawal reimburses OPG for an eligible incurred expenditure related to nuclear waste management and decommissioning activities as specifically defined by the

ONFA. These disbursements are subject to a detailed review and approval process by the Province. OPG does not have other rights to withdraw the funds, including on the agreement's termination, as discussed below. Third, as also discussed below, specific funding formulae and rules contained in the ONFA have been structured such that OPG has been required to fund a substantial portion of the underlying used fuel liabilities in earlier years, effectively as a form of funding conservatism.

Prior to the 2017 ONFA Reference Plan, OPG had been making quarterly contributions to the UFF since inception, as the fund was in an underfunded position. These contributions reflected ONFA requirements that result in about three-quarters of the long-term used fuel management costs being funded over the assumed remaining operating periods, as defined by the ONFA, of the nuclear stations per the 1999 ONFA Reference Plan.[7] These operating periods did not contemplate subsequent station refurbishment or extended operation decisions and therefore are much shorter than the operating lives expected currently, including those used for accounting purposes.[8] In addition to the quarterly contributions, ONFA also required OPG to make a special one-time payment of $334M into the UFF in 2007, which further accelerated the funding of the underlying liabilities.[9] These factors, together with the performance of the fund assets, have contributed to the UFF being fully funded as at December 31, 2016, as discussed in section 4.0 below.

In 2003, the Province made a substantial contribution to the DF, which, together with fund performance since that time, has been sufficient to ensure that the fund remained fully

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[7] This reflects ONFA requirements that the costs for the first 2.23 million fuel bundles, the estimated lifecycle quantity expected to be produced by the stations as of OPG's inception, be funded over the assumed remaining operating periods of the nuclear stations per the 1999 ONFA Reference Plan. As the estimated fixed costs of the used fuel long-term management program, which are expected to be incurred irrespective of the fuel bundle volume, make up a significant portion of the total used fuel funding liability, the majority of the used fuel liability is funded over the assumed 1999 remaining operating period applicable to the first 2.23 million bundles (or within 5 years of a new approved ONFA reference plan if these operating periods have elapsed).
[8] The assumed remaining operating periods for the nuclear stations as of 1999 can be seen at Ex. L-8.1-15 SEC-091, Attachment 1, p. 180.
[9] See EB-2007-0905 Ex. G2-2-1, p. 2, lines 11-20.

funded each time a new contribution schedule has been established.[10] Contributions to either or both the UFF or DF may be required in the future should the funds be in an underfunded position relative to the funding requirements of a new approved ONFA reference plan, either as a result of changes in the funding liabilities or due to below target fund asset performance.

Under the ONFA, the Province guarantees the rate of return earned for the portion of the UFF attributed to the first 2.23 million used fuel bundles at a specified rate tied to the Ontario consumer price index ("CPI") as defined in the ONFA ("committed return").[11] The Province also limits OPG's financial exposure under the ONFA with respect to the lifecycle costs of long-term storage and disposal of the first 2.23 million used fuel bundles. Any earnings above the guaranteed rate accrue to the Province, not OPG.[12] The Province has the right to access cumulative excess market earnings above the committed return when a new or amended ONFA reference plan becomes approved, but has not done so to date. If the market earnings are lower than the committed return, the Province is required to make a contribution to the UFF when a new or amended ONFA reference plan is approved.

The portion of the fund attributable to used fuel bundles above the 2.23 million threshold is not subject to the Province's guarantee and earns a return based on the market performance of the assets. This portion is intended to fund the incremental costs associated with fuel bundles in excess of 2.23 million, which currently represent about one-quarter of the used fuel funding liability.[13]

Upon the termination of the ONFA, only the Province has a right to any excess funds in the UFF. The ONFA does not allow inter-fund transfers from the UFF to the DF. If there is a surplus in the UFF such that the underlying funding liability, as defined by the most recently

[10] The funded status of the DF was noted in EB-2007-0905 Decision with Reasons, p. 66 and EB-2013-0321 Decision with Reasons, p. 109.
[11] See footnote 7.
[12] As noted in EB-2007-0905 Decision with Reasons, p. 66.
[13] As discussed in footnote 7, the incremental costs associated with fuel bundles in excess of the 2.23 million threshold do not include the fixed costs of the used fuel long-term management program.

approved ONFA reference plan, is at least 110 percent funded, after taking into account the committed return on the guaranteed portion, the Province has the right to access the surplus amount greater than 110 percent at any time.

There is no Provincial guarantee with respect to the DF, which earns a return based on the market performance of the assets. OPG has the right to direct, solely when a new or amended ONFA reference plan is approved, up to 50 per cent of the excess, if any, above 120 per cent in the DF to the UFF, with the Province entitled to receive the other 50 per cent. OPG has not directed any portion of the DF surplus to the UFF since the funds' inception. The Province does not have a right to withdraw, at its own discretion, any portion of the excess amounts in the DF until the termination of the ONFA, at which time all such excess amounts accrue to the Province.[14]

In accordance with generally accepted accounting principles ("GAAP"), segregated funds are recognized as assets on OPG's balance sheet to the extent that OPG has a right to access the monies based on the above terms of the ONFA, as further discussed in section 4.0.

3.3 Approved Revenue Requirement Methodology

In accordance with section 6(2)8 of O. Reg. 53/05, the OEB is required to ensure that OPG recovers the revenue requirement impact of its nuclear waste management and decommissioning liabilities arising from the current approved ONFA reference plan. The OEB established the methodologies for recovery of OPG's nuclear liabilities costs in OPG's first payment amounts proceeding, EB-2007-0905. Different methodologies were established for the prescribed facilities and the Bruce facilities, as discussed below. These methodologies have been applied in all subsequent OPG proceedings.

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[14] OPG and Province's respective rights of access to the UFF and the DF are also outlined in OPG's annual audited consolidated financial statements, including for the 2015 year-end found at Ex. A2-1-1, Att. 3, pp. 143-144. Further details also can be found in Ex. L-8.1-2 AMPCO-147 and EB-2013-0321 Ex. J11.8.

In establishing the revenue requirement methodologies in the EB-2007-0905 Decision with Reasons, the OEB recognized that nuclear liabilities were an integral, material element of OPG's costs to operate the nuclear stations, stating the following:

> *In the Board's view, there is no doubt that the cost of nuclear liabilities should be included in the revenue requirement for the prescribed facilities. Managing nuclear waste, and decommissioning the plants at the end of their lives, is an integral part of operating the Pickering and Darlington plants.* (p. 88)
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> *For OPG, the issue is both real and material.* (p. 91)

The revenue requirement methodologies established by the OEB were largely based on accounting values determined in accordance with GAAP. The main difference between the methodology for the prescribed facilities and the Bruce facilities is the application of a return on rate base, a regulatory construct, to the prescribed facilities, as opposed to including the net amount of ARO accretion expense and segregated fund earnings for the Bruce facilities.

<u>3.3.1 Approved Revenue Requirement Methodology for Prescribed Facilities</u>

For the prescribed facilities, OPG recovers the following amounts for nuclear liabilities, based on values determined in accordance with GAAP, as described in more detail in Ex. C2-1-1, section 3.2:

- depreciation expense on the ARC balance
- used fuel and L&ILW variable expenses
- return at the ARO weighted average accretion rate on the lesser of the average unamortized ARC and the average UNL
- return at the weighted average cost of capital on the portion, if any, of average unamortized ARC in excess of average UNL

The return component of the prescribed facilities' methodology effectively replaces the net amount of ARO accretion expense and segregated fund earnings recorded (or forecasted to be recorded) in relation to these stations for financial accounting purposes.

The OEB's decision for splitting the ARC return component between a portion attracting the weighted average accretion rate and a portion attracting the weighted average cost of capital was related to the following observations in the EB-2007-0905 Decision with Reasons:

> *At some point, the unamortized ARC that is included in fixed assets in effect will be funded by debt or equity because OPG is obligated by ONFA to make cash contributions to the segregated funds; however, until those contributions occur, the ARC component of fixed assets has not been funded with capital supplied by investors.* (p. 89)

> *The Board disagrees with CCC's submission that OPG should earn no return on unfunded amounts. Clearly, OPG incurs accretion expense (at an average rate of 5.6%) on its nuclear liabilities whether they are funded or not.* (p. 91)

With respect to the inclusion of ARC depreciation expense in the revenue requirement, the OEB stated the following in the EB-2007-0905 Decision with Reasons:

> *The Board will accept inclusion in the revenue requirement of depreciation expense for the nuclear plants computed in accordance with GAAP, as proposed by OPG. Under GAAP, ARC included in the net book value of fixed assets is depreciated like any other fixed asset cost. It appears as an expense in OPG's income statement. The Board finds that this approach results in a rational allocation of cost.* (pp. 88-89)

Through the calculation of regulatory income taxes for the prescribed facilities, OPG's revenue requirement also includes income tax impacts associated with the above cost elements, as well as the tax impacts of the prescribed facilities' contributions to the segregated funds, expenditures on nuclear liabilities and disbursements from the segregated funds. As further described in Ex. F4-2-1, sections 3.2.1, 3.2.2 and 3.2.6, the cost components of the prescribed facilities' revenue requirement methodology (depreciation, nuclear waste management variable expenses and return components) are not tax deductible and therefore attract a tax gross-up cost. As described in Ex. F4-2-1, sections 3.2.3 and 3.2.4, contributions to the segregated funds and both ONFA-funded and internally funded expenditures on nuclear liabilities are deductible for income tax purposes in accordance with regulations under the *Electricity Act, 1998*, while the disbursements from the segregated funds to cover the ONFA-funded expenditures are correspondingly taxable.[15] Chart 1, lines 2 and 4 shows the 2017-2021 regulatory income tax impacts for the prescribed facilities.

Section 5.2(1) of O. Reg. 53/05 establishes the Nuclear Liability Deferral Account, which records the revenue requirement impact for the prescribed facilities of any change in the nuclear liabilities arising from an approved ONFA reference plan. This account is discussed in Ex. H1-1-1, section 5.13.

3.3.2 Approved Revenue Requirement Methodology for Bruce Facilities

For the Bruce facilities, the OEB determined, by reference to sections 6(2)9 and 6(2)10 of O. Reg. 53/05, that it was appropriate to calculate the costs of the nuclear liabilities using GAAP applicable to unregulated entities. Section 6(2)9 requires that the OEB ensure that OPG recovers all the costs it incurs with respect to the Bruce nuclear generating stations. Section 6(2)10 requires that the excess of OPG's revenues over costs related to its lease of these stations be applied to reduce the payment amounts for the prescribed nuclear facilities.

Specifically, the Board found the following in the EB-2007-0905 Decision with Reasons:

> *The Board finds that the appropriate method to calculate OPG's test period revenues and costs related to the Bruce stations is to use amounts calculated in accordance with GAAP. OPG's investment in Bruce is not rate regulated. In the Board's view, it would be not be a reasonable interpretation of Section 6(2)9 and 6(2)10 to find that OPG should use an accounting method to determine revenues and costs that an unregulated business would otherwise never use.* (p. 109)
>
> *OPG should base its calculation of costs on GAAP. The costs should include all items that would be recognized as expenses under GAAP, including accretion expense on*

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[15] The tax benefit of nuclear liabilities expenditures less segregated fund disbursements is shown in Ex. N1-1-1, Chart 3.2.1, lines 9-18, but not in Ex. C2-1-1. Both Ex. C2-1-1 and Ex. N1-1-1 include the tax gross-up related to the revenue requirement cost components and the tax benefit of the segregated fund contributions. All of the tax impacts are appropriately included in the calculation of regulatory income taxes presented in Ex. F4-2-1 Table 3a and, as updated, in Ex. N1-1-1 Table 8.

> *the nuclear liabilities. Forecast earnings on the segregated funds related to the Bruce liabilities should be included as a reduction of costs.* (p. 110)
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> *When OPG earns a profit (measured in accordance with GAAP) on its Bruce activities, the Board's approach calls for all of that profit to be used to reduce payment amounts for Pickering and Darlington.* […] *If OPG were to include a loss on its Bruce activities, which could happen if there are significant increases in the Bruce nuclear liabilities in the future, that loss would increase the payment amounts for the prescribed assets under the Board's approach.* (p. 111)

OPG recovers the following amounts for the Bruce facilities' portion of the nuclear liabilities, as components of Bruce Lease net revenues, as described in more detail in Ex. C2-1-1, section 3.3:

- depreciation expense on the ARC balance
- used fuel and L&ILW variable expenses
- accretion expense on the ARO balance

  less
- earnings on the segregated funds

The calculation of Bruce Lease net revenues also includes the income tax expense associated with the above items. As these items are not deductible for tax purposes, they attract a deferred income tax credit in accordance with GAAP.[16] As part of Bruce Lease net revenues, segregated fund contributions and expenditures on nuclear liabilities (net of disbursements from the segregated funds), as tax deductible items, reduce the current income tax expense but also attract an equal and offsetting deferred income tax cost, with no net effect.[17] The income tax expense components of Bruce Lease net revenues is discussed further in Ex. G2-2-1, sections 5.8 and 5.9. Bruce Lease net revenues amounts are subject to regulatory income tax treatment through their impact on regulatory earnings before tax for

[16] This deferred income tax credit is included in the nuclear liabilities' revenue requirement impact calculations in Ex. C2-1-1 Table 1a, Note 3, as updated in Ex. N1-1-1 Table 2a, Note 3.

[17] As the net tax effect is nil, these items are not identified in the calculation of the income tax component of Bruce Lease net revenues at Ex. C2-1-1 Table 1, as updated in Ex. N1-1-1 Table 2.

the prescribed facilities.[18] This regulatory income tax impact for 2017-2021 is shown in Chart 1, line 7.

In EB-2007-0905, in accordance with O. Reg. 53/05, the OEB established the Bruce Lease Net Revenues Variance Account, which captures the difference between forecast and actual Bruce Lease net revenues, including nuclear liabilities costs.[19] The Bruce Lease Net Revenues Variance Account is discussed in Ex. H1-1-1, section 5.15.

4.0 Funded Status of Segregated Funds and Interaction with Revenue Requirement Methodology

4.1 Funded Status

Both the UFF and the DF were overfunded as at December 31, 2016 relative to the funding liabilities per the 2017 ONFA Reference Plan. The UFF was marginally overfunded at less than 1% while the DF was funded at approximately 121%. As described in section 3.0, the DF has been fully funded or overfunded each time contributions were established subsequent to the fund's inception and at the time the OEB established the nuclear liabilities recovery methodology for the nuclear liabilities in the EB-2007-0905 proceeding. This is the first time that the UFF has been overfunded since its inception.

As OPG does not have the right to any surplus funding in the UFF, in accordance with GAAP, it limits the portion of the UFF recognized as an asset to the underlying funding liability per the approved ONFA reference plan in effect. For the DF, OPG records, as an asset, an amount equal to the underlying aggregated funding liability plus the portion of DF surplus funding equal to 50% of the aggregate surplus above the 120% threshold, in recognition of the company's right to direct that portion to the UFF. The portion of the DF surplus recognized as an asset is further limited by the amount of underfunding in the UFF. When the UFF is fully funded, none of the surplus in the DF is recorded as an asset, as a transfer from the DF to UFF would increase the surplus in the UFF that OPG cannot access. When the portion of the DF or UFF asset is limited to the underlying funding liability, fund

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[18] As shown at Ex. C2-1-1 Table 1, line 16, as updated at Ex. N1-1-1 Table 2, line 16.
[19] See EB-2007-0905 Decision with Reasons, p. 112.

earnings are recorded at the rate of growth of that liability (i.e. the discount rate) per the approved ONFA reference plan in effect. The portion of any surplus in the funds not recognized as an asset is recorded as "Due to Province" in OPG's financial statements. The accounting for the segregated funds is discussed further in Ex. C2-1-1, section 3.1.2 and is unchanged from EB-2013-0321.

Based on the above, the actual aggregate asset values for each of the UFF and the DF as at December 31, 2016 were capped at the underlying funding obligations per the 2017 ONFA Reference Plan.[20] The projected December 31, 2016 fund values reflected in Ex. N1-1-1 were similarly capped. The actual surplus amounts for each fund as at December 31, 2016 are shown in Chart 2 below.

As noted in Ex. C2-1-1, p. 10, line 11 and Ex. N1-1-1, p. 18, footnote 15, for planning purposes, OPG forecasts fund earnings at the rate of growth of the funding liability determined in accordance with the ONFA, currently at 5.15% per annum. This results in the same projected funded status of the funds, in percentage terms, as the actual status at the time the projection is made. In dollar terms, the projected surplus amount in each of the funds increases at the rate of growth of the funding liability.[21] Under this approach, based on the actual December 31, 2016 balances, the UFF is projected to continue to be marginally overfunded at less than 1% over the 2017-2021 period, while the DFF is projected to continue to be approximately 121% funded. The resulting surplus amounts for each of the funds over the period are as follows:

[20] The aggregate capped values for each fund are attributed to each of the prescribed and Bruce facilities in proportion to the station-level balances of each fund's market value, which are maintained in accordance with the ONFA (as described in Ex. C2-1-1, section 3.1.2).
[21] This principle also is explained in Ex. L-8.1-15 SEC-091.

Chart 2

Segregated Fund Surplus Amounts ($M)

	2016 Actual	2017 Projection	2018 Projection	2019 Projection	2020 Projection	2021 Projection
Used Fuel Fund[22]	25	27	28	29	31	33
Decommissioning Fund	1,477	1,553	1,633	1,717	1,806	1,899

The actual funded status of the funds over the next 5 years cannot be predicted with any certainty because it will depend on the actual market performance of the assets and thus can differ significantly from the above forecast.

As noted in Ex. L-8.1-2 AMPCO-147, the OEB addressed the matter of the Due to Province amounts related to the segregated funds in EB-2013-0321. The pre-filed evidence and Ex. N1-1-1 in this Application reflect these findings. Specifically, the OEB found the following in the EB-2013-0321 Decision with Reasons:

> *The Board will not direct OPG to use the excess earnings in the Decommissioning and Used Fuel funds to decrease the revenue requirement by $28.5M as proposed by AMPCO as the funds are "Due to Province" as stipulated in the Ontario Nuclear Funds Agreement reference plan. The Board is satisfied that the current over funding position will not result in a cash withdrawal from the fund to the Province. In addition, given the long-term nature of the fund, it is appropriate for any periodic over earning to be retained within the fund to offset future potential under earning.* (p. 110)
>
> *The Board has no authority over the segregated funds or the reference plan for nuclear liabilities established by the Ontario Nuclear Funds Agreement.* (p. 110)

The currently overfunded nature of the segregated funds, which is based on point in time asset values, does not indicate continued overfunding in the future. Either or both funds could be in an underfunded position at the time of the next or subsequent ONFA reference

[22] Calculated net of amounts Due to Province related to the committed return on the guaranteed portion of the UFF. In contrast, Due to Province amounts for the UFF presented in Ex. L-8.1-2 AMPCO-147 (corrected version) wholly represented those related to the committed return adjustment. The UFF was underfunded at the time the projection reflected in that interrogatory response was developed, based on the actual year-end 2015 funded status.

plans, depending on market performance and reflecting the evolving nature of the underlying cost estimates. For example, the DF was underfunded for approximately 3 years subsequent to the 2007 ONFA Reference Plan due to weak market performance, recovering to the fully funded status by 2012, when a new contribution schedule based on the 2012 ONFA Reference Plan was approved by the Province. With respect to the UFF, the marginal nature of the current overfunding (i.e. less than 1%) underscores that the fund could become underfunded through normal course asset performance or CPI fluctuations in the near future, or through relatively small changes in the underlying cost estimates at the next ONFA reference plan update.

In general, the long-term nature of the required funding for nuclear waste management and decommissioning naturally lends itself to periods of under-earning or over-earning relative to the long-term target rate of return, as noted by the OEB in the EB-2013-0321 Decision with Reasons citation above. This could result in significant fluctuations in the funded status of the funds over time. For example, the relatively strong overall performance of the funds from inception to date could be followed by a period of future under-performance.

One of the reasons the UFF switched from being underfunded based on the 2012 ONFA Reference Plan to being overfunded based on the 2017 ONFA Reference Plan was a reduction in cost estimates reflecting changes in assumed technology employed to secure used fuel for its ultimate disposal, as well as changes in the assumed timing of the used fuel deep geologic repository. Decommissioning cost estimates increased mainly due to a better definition of work and expected waste volumes. These changes were material. Change of similar magnitude, up or down, could occur in the future, particularly for the long-term nuclear liability programs that are currently in the early planning stages and for which there is inherently limited operating experience. For example, the used fuel deep geologic repository is currently in the conceptual design phase and undergoing a long-term siting process, with construction not expected to commence until at least 2035. With respect to the decommissioning program, the project to de-fuel, de-water and place in safe storage the eight-unit Pickering site is currently in the planning phase and is not expected to enter execution until around the time that the units begin to shut down approximately 6-8 years from now. Cost estimates for these major, complex undertakings can continue to change as the quality of the estimates improves, impacting future funding requirements under the ONFA.

4.2 Impact of Funded Status

The funded status of the segregated funds is not a direct input into the nuclear liabilities' revenue requirement methodology. In particular, it is the difference between the ARO and the segregated fund asset balances (i.e. the UNL) that is a direct input into the revenue requirement methodology (for the prescribed facilities). However, the funded status indirectly interacts with both the prescribed facilities and Bruce facilities' methodology in two ways: the impact of capping segregated fund asset values and associated earnings, and the level of fund contributions.[23] These interactions are discussed below.

4.2.1 Impact of Capping Segregated Fund Asset Values and Associated Earnings

For the prescribed facilities, the funded status affects fund asset balances reflected in the calculation of the average UNL value. When the fund asset value is lower because it is capped due to overfunding, all else equal, the average UNL increases. If the average UNL would be lower than the average unamortized ARC in the absence of the capping, the capping acts to reduce the revenue requirement, since a greater portion of the ARC would be subject to return at the weighted average accretion rate rather than at the higher weighted average cost of capital. If the average UNL would be higher than the average unamortized ARC in the absence of the capping, there is no impact on the revenue requirement. As shown at Ex. N1-1-1, Table 2a, Note 1, based on business planning projections, the average UNL is higher than the average unamortized ARC in all years of the 2017-2021 period. Therefore, a change in the segregated fund values would not impact the revenue requirement.

[23] The interaction of the funded status with the revenue requirement methodologies, through the impact of capping segregated fund asset values and associated earnings, also is discussed in Ex. L-8.1-5 CCC-038.

For the Bruce facilities, the relationship between the funded status of the segregated funds and the revenue requirement is through the impact on segregated fund earnings, which are included in the calculation of Bruce Lease net revenues. As discussed previously, the overfunded status of the funds results in fund earnings being recorded at the funding liability growth rate per the ONFA reference plan, currently 5.15% per annum, whatever the market performance of the funds or, in the case of the guaranteed portion of the UFF, the CPI value. While it could materially affect actual fund earnings, this has limited to no effect on forecast segregated fund earnings, which are based on the growth rate specified in the approved ONFA reference plan irrespective of the funded status of the segregated funds.[24]

Based on the above, capping segregated fund values and associated earnings for either the prescribed facilities or the Bruce facilities does not have a material impact on the proposed revenue requirements for the 2017-2021 period. The effect of capping segregated fund values on actual fund earnings for the Bruce facilities could be more prominent and would be reflected in amounts recorded in the Bruce Lease Net Revenues Variance Account. The magnitude of this effect will depend on the difference between realized market asset performance and the funding liability growth rate.[25]

4.2.2 Impact of Contribution Levels

The level of contributions to the segregated funds, determined pursuant to an approved contribution schedule based on a current approved ONFA reference plan, is a function of the funded status of the funds. As described in section 3.3.1, prescribed facilities' segregated fund contributions result in reductions in regulatory income taxes and therefore changes in these contributions impact revenue requirement. As described in section 3.3.2, the tax impact of Bruce facilities' segregated fund contributions is zero.

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[24] An immaterial effect arises due to the reduction in the existing segregated fund values at the end of 2016 to reflect the incremental surplus amounts arising from the reduction in the funding liabilities based on the 2017 ONFA Reference Plan. These 2016 fund values would be the starting point for the 2017-2021 projected segregated fund earnings at the 5.15% per annum rate. OPG estimates this impact to be a reduction in segregated fund earnings for the Bruce facilities of $2-3M per year over the 2017-2021 period.

[25] For the guaranteed portion of the UFF, the relevant difference is between the CPI-based committed return and the funding liability growth rate.

As shown at line 14 of Ex. N1-1-1, Tables 3 and 4, OPG's 2017-2019 Business Plan assumed that the segregated fund contributions for each of the prescribed facilities and Bruce facilities will be zero for 2017 to 2021. Compared to the pre-filed evidence based on the 2012 ONFA Reference Plan (Ex. C2-1-1 Table 2, line 14), this represents a reduction in contributions of $667.5M for the prescribed facilities over the 5-year period, which increases the revenue requirement by $222.5.[26] This increase is reflected in the overall 5-year net increase of $279.6M in the prescribed facilities' portion of the nuclear liabilities revenue requirement outlined in Ex. N1-1-1.

The Bruce facilities' contributions for 2017-2021 are assumed to decrease by $242.5M per the 2017 ONFA Reference Plan, compared to the 2012 ONFA Reference Plan (Ex. C2-1-1 Table 3, line 14). While this does not impact the tax expense component of the Bruce Lease net revenues as discussed previously, it does have a modest secondary effect of reducing the forecast segregated fund earnings (net of deferred income taxes) due to a lower fund base, thereby increasing the revenue requirement. The forecast segregated fund earnings are lower by an average of approximately $3.5M/yr over the 2017-2021 period. This increase is reflected in the overall 5-year net decrease of $550.8M in the Bruce facilities' portion of the nuclear liabilities revenue requirement outlined in Ex. N1-1-1.

OPG is awaiting the Province's approval of the proposed contribution schedule based on the 2017-2021 ONFA Reference Plan, which OPG submitted on January 30, 2017. If approved, the schedule will result in overall positive contribution amounts for the prescribed facilities and offsetting overall negative contribution amounts for the Bruce facilities for the 2017-2021 period, in recognition that the prescribed facilities are in a net underfunded position and the Bruce facilities are in a net overfunded position. This would ensure that the funds are fully funded at a station level, consistent with the intent of the ONFA. Contributions based on OPG's proposed schedule would reduce the revenue requirement impact relative to Ex. N1-1-1, due to the tax benefit of the additional contributions for the prescribed facilities, partially

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[26] Calculated as: $667.5M reduction in prescribed facilities' fund contributions x 25% / (1-25%).

offset by the impact of lower segregated fund earnings for the Bruce facilities as a result of the lower contributions. As noted above, the level of contributions for the Bruce facilities would not change the related income tax expense component of Bruce Lease net revenues.

Any differences between actual contributions as approved by the Province and the assumed amounts reflected in Ex. N1-1-1 will be subject to the Nuclear Liability Deferral Account and the Bruce Lease Net Revenues Variance Account.

5.0 Amounts Collected from Ratepayers Versus Amounts Expended by OPG

5.1 Amounts Collected Versus Amounts Expended

Chart 3 below presents a comparison of estimated nuclear liabilities costs collected from ratepayers (or recorded in deferral and variance accounts for future disposition), before taxes, and amounts expended by OPG on nuclear liabilities in the form of fund contributions and internally funded expenditures. Chart 3 shows this information for each of prescribed facilities and Bruce facilities during the period from April 1, 2008 to December 31, 2016. For the prescribed facilities, the information is based on OEB-approved forecast amounts from previous proceedings, as adjusted for differences between actual and forecast nuclear production that affected the ultimate amount recovered, as well as amounts recorded in the Nuclear Liability Deferral Account and the Impact Resulting from Changes in Station End-of-Life Dates (December 31, 2015) Deferral Account. For the Bruce facilities, the information shows the portion of actual Bruce Lease net revenues attributable to nuclear liabilities, which is what OPG ultimately recovers once forecast amounts are trued up through the Bruce Lease Net Revenues Variance Account. The comparison indicates that the total estimated amounts recovered over the period, before taxes, are lower than amounts expended for the prescribed facilities by approximately $41M and by approximately $241M for the Bruce facilities, for a total of approximately $282M.

Chart 3

Amounts Collected Versus Amounts Expended for Nuclear Liabilities ($M)

April 1, 2008 to December 31, 2016

Line No.	Description	Apr 1 to Dec 31 2008	2009	2010	Jan 1 to Feb 28 2011	Mar 1 to Dec 31 2011	2012	2013	Jan 1 to Oct 31 2014	Nov 1 to Dec 31 2014	2015	2016	Total
	Prescribed Facilities												
1	**Pre-tax Revenue Requirement Impact**	159.4	207.4	209.6	34.9	121.4	145.6	145.7	121.4	35.8	213.2	213.9	1,608.2
2	**(Under)/Over Recovery Due to Differences Between Approved and Actual Nuclear Production**	(12.1)	(15.0)	(19.1)	1.7	(7.6)	(5.6)	(17.9)	(7.6)	1.2	(14.7)	(10.0)	(106.6)
3	**Nuclear Liability Deferral Account**	0.0	0.0	0.0	0.0	0.0	146.3	80.9	66.9	0.0	0.0	2.2	296.3
4	**Impact of Changes in Station End-of-Life (2015) Deferral Account**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(49.1)	(49.1)
5	**Total Amounts Recovered (pre-tax)** (lines 1 through 4)	147.4	192.4	190.5	36.6	113.8	286.3	208.6	180.7	37.0	198.5	157.0	1,748.8
6	**Contributions to Segregated Funds**	44.2	124.7	150.2	24.2	120.8	107.1	98.1	141.6	28.5	172.8	176.7	1,188.9
7	**Internally Funded Expenditures on Nuclear Liabilities**	32.1	63.6	60.2	11.3	57.4	73.9	60.0	45.1	21.7	85.1	90.3	600.7
8	**Total Amounts Expended** (line 6 + line 7)	76.3	188.3	210.4	35.5	178.2	181.0	158.1	186.7	50.2	257.9	267.0	1,789.6
9	**Excess of Amounts Recovered over Amounts Expended - Prescribed Facilities (pre-tax)** (line 5 - line 8)	71.1	4.1	(19.9)	1.2	(64.4)	105.3	50.5	(6.0)	(13.2)	(59.4)	(110.0)	(40.9)
	Bruce Facilities												
10	**Actual Bruce Lease Net Revenues Impact**	311.5	(32.6)	(68.6)	(8.5)	89.5	70.5	142.4	81.2	20.5	173.6	231.6	1,011.2
11	**Contributions to Segregated Funds**	296.2	214.1	113.9	17.6	87.9	74.9	85.9	(26.2)	(5.1)	(29.4)	(26.9)	802.9
12	**Internally Funded Expenditures on Nuclear Liabilities**	34.9	23.8	19.3	6.6	37.5	55.6	59.6	41.2	19.4	50.7	101.0	449.6
13	**Total Amounts Expended** (line 11 + line 12)	331.1	237.9	133.2	24.2	125.4	130.5	145.5	15.0	14.3	21.3	74.1	1,252.5
		226.8	164.2	94.6	17.8	92.2	97.9	109.1	11.3	10.7	16.0	55.6	896.0
14	**Excess of Amounts Recovered over Amounts Expended - Bruce Facilities (pre-tax)** (line 10 - line 13)	(19.6)	(270.5)	(201.8)	(32.7)	(35.9)	(60.0)	(3.0)	66.2	6.2	152.4	157.5	(241.3)
15	**Total Excess of Amounts Recovered over Amounts Expended (pre-tax)** (line 9 + line 14)	51.5	(266.4)	(221.7)	(31.5)	(100.3)	45.3	47.5	60.2	(7.0)	92.9	47.5	(282.1)

Presented in Chart 4 below is a comparison of proxy amounts collected from ratepayers through interim rates set by the Province and amounts expended by OPG, for the period from April 1, 2005 to March 31, 2008. As a proxy for amounts collected, this comparison uses actual values for the period available from the EB-2007-0905 proceeding,[27] applying the revenue requirement methodology accepted by the OEB in that proceeding as having been used by the Province to set interim rates.[28] This comparison indicates that, before taxes, OPG's contributions to the segregated funds and expenditures on internally funded nuclear liabilities costs for the period would have been in the order of $1B greater than proxy amounts recovered from ratepayers.

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[27] Estimated amounts collected from ratepayers include those recorded in the Nuclear Liability Deferral Account for the period from January 1, 2007 to March 31, 2008. For the first quarter of 2008, estimated amounts are based on actual information available from the EB-2010-0008 proceeding.

[28] See EB-2007-0905 Decision With Reasons, pp. 97-98.

Chart 4

Proxy Amounts Collected Versus Amounts Expended for Nuclear Liabilities ($M)

April 1, 2005 to March 31, 2008

Line No.	Description	Reference	Apr 1 to Dec 31 2005	2006	2007	Jan 1 to Mar 31 2008	Total
	Prescribed Facilities						
1	**Pre-tax Proxy Amounts Recovered**	Note 1	132	156	225	53	566
2	**Contributions to Segregated Funds**	Note 1	182	242	225	15	663
3	**Internally Funded Expenditures on Nuclear Liabilities**	Note 1	31	98	8	28	165
4	**Total Amounts Expended**	line 2 + line 3	212	340	233	43	828
5	**Excess of Proxy Amounts Recovered over Amounts Expended - Prescribed Facilities (pre-tax)**	line 1 - line 4	(80)	(184)	(8)	10	(262)
	Bruce Facilities						
6	**Pre-tax Proxy Amounts Recovered**	Note 1	87	114	179	34	414
7	**Contributions to Segregated Funds**	Note 1	159	212	563	99	1,033
8	**Internally Funded Expenditures on Nuclear Liabilities**	Note 1	15	36	43	19	113
9	**Total Amounts Expended**	line 7 + line 8	174	248	606	117	1,145
10	**Excess of Proxy Amounts Recovered over Amounts Expended - Bruce Facilities (pre-tax)**	line 6 - line 9	(87)	(134)	(427)	(84)	(732)
11	**Total Excess of Proxy Amounts Recovered over Amounts Expended (pre-tax)**	line 5 + line 10	(167)	(318)	(435)	(74)	(994)

Note 1: For April 1, 2005 to Dec 31, 2005, amounts are estimated as 3/4 of full-year 2005 actual amounts per EB-2007-0905 Ex. H1-1-3. For 2006 and 2007, full-year actual amounts are shown, per EB-2007-0905 Ex. H1-1-3. For Jan 1, 2008 to Mar 31, 2008, actual amounts shown are based on various exhibits in EB-2010-0008.

Although there would be some differences between proxy recovery amounts used in this analysis and the forecast amounts embedded in the interim rates, this analysis provides a useful overall indication of the direction and magnitude of the differences for the period. The magnitude and direction of these differences are consistent with the significant front-end loading of contributions under the ONFA funding mechanism.

5.2 Implications on Revenue Requirement Methodology

OPG believes that the revenue requirement methodology for the nuclear liabilities should reflect their long-term nature, not a point in time funded status of the monies set aside to discharge these obligations. The above comparison of amounts recovered from ratepayers to amounts collected from OPG is for a limited period of time compared to the overall long-term duration of the liabilities, and is greatly affected by the front-end loaded nature of the funding.

The funded status can be expected to continue to be volatile over the decades that the segregated funds will continue to be in place.

In accordance with ratemaking principles, a fair revenue requirement methodology should allow OPG to recover all of its nuclear liabilities costs, with recovery reasonably matched to the period over which these costs are incurred to generate electricity from the nuclear stations. Such an outcome would meet the regulatory principle of intergenerational equity and provide appropriate price signal to consumers, by reflecting the cost of power consumed in a given period. The current revenue requirement methodology is based, in large part, on accounting-based values and therefore provides a rational allocation of costs over the period in which the electricity is generated and consumed. As noted previously, the current methodology was established by the OEB at the time that the DF was fully funded.

The current fully funded status of the segregated funds is not indicative of future funding requirements based on subsequent ONFA reference plans and, as shown in Charts 3 and 4, historically there have been differences, in both directions, between amounts recovered and amounts expended. The direction of such differences in the future will depend on inherent variability in market performance and economic conditions, and the evolving nature of cost estimates and planning assumptions. Potentially significant future changes in either the market value of fund assets or funding obligations are possible.

O. Reg. 53/05 provisions related to nuclear liabilities costs provide additional requirements that should be considered, particularly for the Bruce facilities. As the Bruce stations are not prescribed under O. Reg. 53/05, the OEB held in the EB-2007-0905 Decision with Reasons (pp. 99-106) that the Bruce Lease is an unregulated commercial contract and that “[t]he Board has no authority to set or review the terms of the lease between OPG and Bruce Power.” (p.99) As discussed earlier in this evidence, the OEB also determined, through the application of O. Reg. 53/05, that OPG’s revenues and costs associated with the Bruce facilities should be determined in accordance with GAAP applied by non-regulated entities, irrespective of whether this produces a net profit or loss. The GAAP-based treatment for the Bruce facilities was most recently reaffirmed in the EB-2013-0321 Decision with Reasons (p.

107). Under GAAP, the costs of the nuclear liabilities are governed by ARO accounting requirements.

Any change in revenue requirement methodology would engage consideration of transition implications, as well as financial consequences to OPG and its shareholder. Transition implications of a change in methodology would need to take into account the fact that OPG became subject to rate regulation partway through its existence, as well as the effect of the significant pre-funding requirements in earlier years. As nuclear liabilities represent a material portion of OPG's regulated nuclear cost structure, the company's future revenue and net income could be materially affected by a different recovery basis for these costs.