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File 17939

**VIA *RESS* FILING AND COURIER**

July 29, 2010

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

Dear Ms. Walli

**Re: Ontario Power Generation Inc. 2011-2012 Payment Amounts for Prescribed Generating Facilities, EB-2010-0008**

Attached please find the Power Workers' Union's Interrogatories with respect to the above-noted application.

Yours very truly,
PALIARE ROLAND ROSENBERG ROTHSTEIN LLP

***Original signed by***

Richard P. Stephenson

RPS:jr

Encl.

cc: *via email:*
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Doc 763077v1

**EB-2010-0008**

**IN THE MATTER OF** the *Ontario Energy Board Act, 1998*, S. O. 1998, c. 15, Schedule B;

**AND IN THE MATTER OF** an application by Ontario Power Generation Inc. pursuant to section 78.1 of the *Ontario Energy Board Act, 1998* for an order or orders determining payment amounts for the output of certain of its generating facilities.

# POWER WORKERS' UNION INTERROGATORIES

## GENERAL

## PWU Interrogatory 1

**Issue 1.2: Are OPG's economic and business planning assumptions for 2011-2012 an appropriate basis on which to set payment amounts?**

Ref (a): Exhibit A2, Tab 2, Schedule 1, Attachment 1, Page 3, states:

> **Recognizing the scope and complexity of the challenges we face this year, a number of changes are being made to the business planning process. These improvements include:**
> - **Earlier roll out of process instructions**
> - **Two step process for top-down establishment of OM&A targets**
> - **Improving the transparency of plans – eg through benchmarking and gap analyses**
> - **Increased management oversight during the process**
> - **Earlier approval of the corporate plan (to facilitate preparation of the OEB application)**

**Question:**

1. Please describe the business planning process used for the business plan that formed the basis for OPG's 2008-2009 Payment Amounts application (EB-2007-0905). Please include a description of the process used to establish OM&A budgets in that business plan.

## PWU Interrogatory 2

**Issue 1.2: Are OPG's economic and business planning assumptions for 2011-2012 an appropriate basis on which to set payment amounts?**

Ref (a): A news release from Ontario Power Generation posted on May 26, 2010 states:

> **[Toronto): Ontario Power Generation (OPG) is proceeding with a lower rate application to the Ontario Energy Board (OEB).**
>
> **The proposal, if accepted by the OEB, would result in an increase to the average residential bill of about $1.86 per month. OPG delayed filing its application last month so that it could find a way to lower its requested rate by more than 30 per cent.**
>
> **"We wanted to do more to reduce the impact of our request on ratepayers" said Tom Mitchell, OPG's President and CEO. "Last year, we found $90 million of internal savings and deferred out application. This year, we sharpened our pencils to shave our current rate application while still allowing OPG to produce safe, clean, reliable, low-cost electricity for Ontario."**
>
> **….**

**Question:**

1. Please describe in detail all changes made to the business planning assumptions related to the reductions in the proposed payment amounts.

## PWU Interrogatory 3

**Issue 1.3: Is the overall increase in 2011 and 2012 revenue requirement reasonable given the overall bill impact on consumers?**

Ref (a): A news release from Ontario Power Generation posted on May 26, 2010 states:

> **[Toronto): Ontario Power Generation (OPG) is proceeding with a lower rate application to the Ontario Energy Board (OEB).**
>
> **The proposal, if accepted by the OEB, would result in an increase to the average residential bill of about $1.86 per month. OPG delayed filing its application last month so that it could find a way to lower its requested rate by more than 30 per cent.**
>
> **"We wanted to do more to reduce the impact of our request on ratepayers" said Tom Mitchell, OPG's President and CEO. "Last year, we found $90 million of internal savings and deferred out application. This year, we sharpened our pencils to shave our current rate application while still allowing OPG to produce safe, clean, reliable, low-cost electricity for Ontario."**
>
> **….**

**Questions:**

1. What are the dollar impacts on the total revenue requirements of the reductions in the proposed payment amounts for 2011 and 2012 from those contemplated at the time of OPG's stakeholder consultations?

2. Please identify all proposals/projects in OPG's 2011 and 2012 payment amounts application that were impacted by the reductions in payment amounts.

3. For each proposal/project identified in (2) above, please describe how it was impacted by the reductions (e.g. amount of budget cut relative to original budget, deferral to future year, cancellation) and the impact of the reductions (e.g. risks, asset life expectancy, impact on NPV).

4. Please describe in detail the process that OPG went through in arriving at the reductions in the proposed payment amounts from those contemplated at the time of the stakeholder consultations.

## CAPITAL PROJECTS – Regulated Hydroelectric

## PWU Interrogatory 4

**Issue 4.2: Are the capital budgets and/or financial commitments for 2011 and 2012 for the regulated hydroelectric business appropriate and supported by business cases?**

**Issue 6.1: Is the test period Operations, Maintenance and Administration budget for the regulated hydroelectric facilities appropriate?**

Ref (a): Exhibit D1, Tab 1, Schedule 1, Page 1, Line 32 to Page 2, Line 6 states:

> **As described in Ex. F1-T1-S1, section 2, the Hydroelectric Business Unit uses a structured portfolio approach to identify and prioritize projects. Projects are then administered using the project management process that is described in section 7.0 below. The hydroelectric project portfolio is approved through OPG's business planning process, which includes approval of the capital project budget (as well as the project OM&A budget) by OPG's Board of Directors ("the OPG Board"). Prior to beginning work on a project, funds are released in accordance with OPG's Organizational Authority Register through the approval of a business case summary.**

**Questions:**

1. Please indicate if OPG has displaced, over the period 2007-2009, ongoing works or activities related to either capital or OM&A expenditures for its hydroelectric business due to business planning decisions to reduce the portfolio budget in favour of other higher priority projects that impact the short-term and/or long-term reliability of the regulated hydroelectric generating units?

2. If your response to (1) is yes, please describe such projects/expenditures that were displaced.

3. What are the impacts of displacing the projects described in response to (2)?

4. Please indicate if OPG is planning to displace, over the period 2010-2012, ongoing works or activities related to either capital or OM&A expenditures for its hydroelectric business due to business planning decisions to reduce the portfolio budget in favour of other higher priority projects that impact the short-term and/or long-term reliability of the regulated hydroelectric generating units?

5. If your response to (4) is yes, please describe such projects/expenditures that were displaced.

6. What are the impacts of displacing the projects described in response to (5)?

## PWU Interrogatory 5

**Issue 4.2: Are the capital budgets and/or financial commitments for 2011 and 2012 for the regulated hydroelectric business appropriate and supported by business cases?**

**Issue 6.1: Is the test period Operations, Maintenance and Administration budget for the regulated hydroelectric facilities appropriate?**

Ref (a): The Ontario Power Authority website states:

> **Though wind energy is relatively new to Ontario, it is a growing source of electricity generation in the province. Ontario currently has more than 300 MW of wind power in service with an additional 1,000 MW on the way.**

Ref (b): The Ontario Power Authority website states:

> **Ontario is Canada's first province to actively support the development of solar electricity generation projects through the Standard Offer Program, which will enable small, local, renewable energy producers to get into the energy market.**

**Question:**

1. What work programs/investments is OPG undertaking to maintain/enhance its load-frequency control performance at its regulated facilities in support of the expected increase in Ontario's supply mix of non-dispatchable wind and solar generation?

## PWU Interrogatory 6

**Issue 4.2: Are the capital budgets and/or financial commitments for 2011 and 2012 for the regulated hydroelectric business appropriate and supported by business cases?**

Ref (a): Exhibit B1, Tab 1, Schedule 1, Table 1 indicates that net fixed assets in the hydroelectric rate base are declining from $3.89B in 2007 to $3.77B in 2012, as accumulated depreciation is rising more quickly than new investment.

**Questions:**

1. Did OPG remove any hydroelectric projects from its plan, at the direction of its shareholder or its executive management, primarily to mitigate ratepayer impacts?

2. If the answer to part (1) is yes, please provide a description of the removed projects, including the investment amounts and timing thereof.

## CAPITAL PROJECTS - Nuclear

## PWU Interrogatory 7

**Issue 4.5: Are the capital budgets and/or financial commitments for 2011 and 2012 for the nuclear business appropriate and supported by business cases?**

Ref (a): Exhibit D2, Tab 2, Schedule 1, Page 4 of 17 states:

> **The Darlington Refurbishment project is a major undertaking that will require several years of planning and preparation prior to the first outage in 2016. To mitigate risk, the project is being managed in phases, requiring that certain milestones be achieved before proceeding to a subsequent phase and before OPG Board authorization of the expenditure of funds associated with activities in that phase.**

**Questions:**

1. Please provide further details on the phases that this project is divided into, the work to be performed during each phase, the deliverables, and the acceptance criteria that must be met at the end of each phase before proceeding to the next phase. In particular, please indicate how this project management approach reduces the risk of cost overruns and failures of the rehabilitated plant to perform to expectations.

2. Is this approach one that allows OPG to capitalize on experience gained from other major projects? If so, how was experience gained incorporated into this approach?

## PRODUCTION FORECASTS – Regulated Hydroelectric

## PWU Interrogatory 8

### Issue 5.1: Is the proposed regulated hydroelectric production forecast appropriate?

Ref (a): Exhibit E1, Tab 1, Schedule 1, Page 5, Line 30 to Page 6, Line 4. With regard to Surplus Baseload Generation ("SBG") factored into OPG's hydroelectric forecast production, OPG states:

> **Significant SBG is forecast to continue through the test period based on Ontario electricity demand and generation supply forecasts. Consequently, an additional forecast SBG adjustment has been integrated into the regulated hydroelectric production forecast totals for 2010, 2011, and 2012, and itemized separately in line 21 of Ex. E1-T1-S2 Table 1. The specific SBG adjustments included in the forecast are: 0.2 TWh in 2010, 0.5 TWh in 2011, and 0.8 TWh in 2012.**

Ref (b): IESO's May 2010 18-Month Outlook, page iii
http://www.theimo.com/imoweb/pubs/marketReports/18MonthOutlook_2010may.pdf

> **From June 2010 to November 2011, approximately 2,900 megawatts (MW) of new and refurbished supply are scheduled to enter commercial operation. Of that, approximately 470 MW of new generation has been announced under the Feed-in Tariff (FIT) program and 180 MW contracted under the Renewable Energy Supply III (RES III) program.**

Ref (c): IESO, FIT Dispatch and Operability, Gordon Drake, March 10, 2010. Slide 2
http://www.theimo.com/imoweb/pubs/consult/se57/se57-20100310-FiT-Dispatch-Operability.pdf

> - **Initial applications for FiT program totalled more than 9,000 MW**
>  - **Wind: 79%**
>  - **Solar: 16%**
>  - **Other: 5%**
> - **Significant volumes of FiT projects are expected to connect to the distribution system**
> - **Agreement with Samsung introduces another 2,500 MW of generation**
>  - **Wind: 80%**
>  - **Solar: 20%**

Ref (d): Ontario Government Newsroom. Ontario's Coal Phase Out Plan. September 3, 2009
http://news.ontario.ca/mei/en/2009/09/ontarios-coal-phase-out-plan.html

> **Since 2003 coal-fired generation in Ontario has been decreasing. The closure of the coal-fired Lakeview Generating Station in 2005 eliminated carbon dioxide emissions equivalent to taking approximately 500,000 cars off Ontario roads.**
>
> **Ontario Power Generation (OPG) will continue to reduce carbon dioxide emissions through an ongoing coal phase out plan which targets emissions**

**from coal at 19.6 million tonnes in 2009 and 15.6 million tonnes in 2010. By 2011, coal electricity generation will be cut by two-thirds.**

**Questions:**

1. In setting out provisions in relation to SBG's associated with the hydroelectric production forecast, Ref (a), has OPG taken into account:

   a. Increasing penetration of renewable generation as set out in Ref (b) and Ref (c)? If so, please describe how this has been factored in.

   b. The reduction of coal generation over 2010 and 2011 that would result from Ontario's Coal Phase Out Plan set out in Ref (d)? If so, please describe how this has been factored in.

2. Please confirm that spilling of water at OPG's regulated facilities is a likely outcome of SBG.

3. What is the financial impact of spilling of water at the regulated hydroelectric facilities on OPG?

4. What is the economic impact of spilling water at the regulated hydroelectric facilities on Ontario's power system (e.g. HOEP)?

5. Please describe any changes that OPG can make in its operation of its regulated hydroelectric facilities to avoid spilling water in accommodating SBG.

6. Does OPG modify the operation at regulated hydroelectric facilities when the operation of other hydroelectric facilities are capable of storing a portion of the surplus water as a result of SBG? If so, does this result in incremental costs related to generation loss?

7. If the response to (6) is yes, has OPG estimated its possible capacity and energy losses incurred by compensating for SBG at its hydroelectric facilities ?

8. If the response to (7) is yes, what are the estimated losses incurred at the regulated facilities for 2010, 2011 and 2012? What are the losses in terms of SBG volume reported in Exhibit 1, Tab 1, Schedule 1?

9. In anticipating periods of SBG, will OPG be able to operate some of its hydroelectric facilities at a suboptimal operating point (e.g. is OPG considering keeping its forebays at levels that would reduce its capability to meet peak load that could have a negative impact on OPG's revenue?)?

10. If OPG can operate some of its hydroelectric facilities at a suboptimal operating point at times of SBG, under what conditions will OPG be able to do so?

11. Is the use of the Sir Adam Beck Pump Generating Station an alternative to spilling water to meet SBG?

12. If the response to (11) is yes, how will this alternative be impacted by the Niagara Tunnel project?

13. Please identify any direct and/or indirect impacts on safety, reliability and the asset life of OPG's prescribed hydroelectric facilities (e.g. control mechanisms) resulting from the changes in the operation of the regulated hydroelectric facilities related to SBG.

14. With regard to any impacts described in response to (13), what would be the anticipated costs, if any, related to these impacts?

15. If costs are identified in response to (14), would any of such costs apply to the test years?

## PRODUCTION FORECASTS – Nuclear

## PWU Interrogatory 9

### Issue 5.2: Is the proposed nuclear production forecast appropriate?

Ref (a): Exhibit E2, Tab 1, Schedule 1, Page 12, Lines 20-24. With regard to the impact of SBG on OPG's nuclear production forecast, OPG reports:

> **The Nuclear production forecast for the 2011 - 2012 period does not include a specific provision for reduced production due to surplus baseload generation. OPG was not subject to material reductions in nuclear generation due to surplus baseload generation situations in 2008 or 2009 and is currently not anticipating a significant impact on its nuclear facilities during the test period.**

Ref (b): IESO's May 2010 18-Month Outlook, page iii
http://www.theimo.com/imoweb/pubs/marketReports/18MonthOutlook_2010may.pdf

> **From June 2010 to November 2011, approximately 2,900 megawatts (MW) of new and refurbished supply are scheduled to enter commercial operation. Of that, approximately 470 MW of new generation has been announced under the Feed-in Tariff (FIT) program and 180 MW contracted under the Renewable Energy Supply III (RES III) program.**

Ref (c): IESO, FIT Dispatch and Operability, Gordon Drake, March 10, 2010. Slide 2
http://www.theimo.com/imoweb/pubs/consult/se57/se57-20100310-FiT-Dispatch-Operability.pdf

- **Initial applications for FiT program totalled more than 9,000 MW**
  - **Wind: 79%**
  - **Solar: 16%**
  - **Other: 5%**
- **Significant volumes of FiT projects are expected to connect to the distribution system**
- **Agreement with Samsung introduces another 2,500 MW of generation**
  - **Wind: 80%**

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Ref (d): Ontario Government Newsroom. Ontario's Coal Phase Out Plan. September 3, 2009
http://news.ontario.ca/mei/en/2009/09/ontarios-coal-phase-out-plan.html

> **Since 2003 coal-fired generation in Ontario has been decreasing. The closure of the coal-fired Lakeview Generating Station in 2005 eliminated carbon dioxide emissions equivalent to taking approximately 500,000 cars off Ontario roads.**
>
> **Ontario Power Generation (OPG) will continue to reduce carbon dioxide emissions through an ongoing coal phase out plan which targets emissions from coal at 19.6 million tonnes in 2009 and 15.6 million tonnes in 2010. By 2011, coal electricity generation will be cut by two-thirds.**

**Questions:**

1. In setting out provisions in relation to SBG's associated with the nuclear production forecast, Ref (a), has OPG taken into account:

   a. Increasing penetration of renewable generation as set out in Ref (b) and Ref (c)? If so, please describe how this has been factored in.

   b. The reduction of coal generation over 2010 and 2011 that would result from Ontario's Coal Phase Out Plan set out in Ref (d)? If so, please describe how this has been factored in.

2. Please identify the impact, if any, on the asset life of OPG's nuclear facilities that might result from the ramping down/up related to SBG should there be an increased requirement for OPG's nuclear facilities to react to SBG.

3. With regard to any impacts described in response to (2), what would be the anticipated costs related to these impacts?

4. If costs are identified in response to (3), would any of such costs apply to the test years?

## OPERATING COSTS – Regulated Hydroelectric

## PWU Interrogatory 10

### Issue 6.1: Is the test period Operations, Maintenance and Administrative budget for the regulated hydroelectric facilities appropriate?

Ref (a): Exhibit F1, Tab 1, Schedule 1, Page 3, Lines 13-17 states:

> **Hydroelectric uses a structured portfolio approach to identify and prioritize projects for its investment program. Annual engineering reviews and plant condition assessments (conducted on a cycle of approximately seven to ten years) are performed to determine short-term and long-term expenditure requirements to sustain or improve each facility, and ensure continued safe operation.**

**Question:**

1. Please provide detailed descriptions of OPG's hydraulic engineering review and plant condition assessment processes.

## PWU Interrogatory 11

### Issue 6.1: Is the test period Operations, Maintenance and Administration budget for the regulated hydroelectric facilities appropriate?

Ref (a): Exhibit F1, Tab 2, Schedule 2, Page 4, Lines 10-11. In comparing 2009 Actual vs. 2009 budget OPG reports:

> **Higher than planned attrition and unfilled vacancies across the central support groups (resulting in lower labour costs).**

Ref (b): Exhibit F1, Tab 2, Schedule 2, Page 4, Lines 27-28. For 2009, in relation to the Niagara Group, OPG submits:

> **These costs have been offset by a reduction in labour burdens of $0.2M and an overall reduction in labour costs due to staff vacancies of $1.8M.**

Ref (c): Exhibit F1, Tab 2, Schedule 2, Page 5, Lines 28-30. In comparing 2008 Actual vs. 2008 budget OPG reports:

> **…and delays in filling staff vacancies across the central support groups, especially in Engineering and Hydroelectric Development.**

Ref (d): Exhibit F1, Tab 2, Schedule 2, Page 8, Line 15. In comparing 2007 Actual vs. 2007 budget for the hydroelectric central support groups OPG states:

> **Staffing under-variance due to staff departures and slower hiring ($0.5M)**

**Questions:**

1. Were OPG's works across the Niagara Plant Group, R.H. Saunders Generating Stations and the Hydroelectric Central Groups impacted by unfilled staff vacancies reported over the period 2007-2009? If so, please provide a description of OPG's efforts to manage unfilled vacancies.

2. What is the current status of OPG's staff vacancies across the Niagara Plant Group, R.H. Saunders Generating Stations and the Hydroelectric Central

Groups? Please indicate the number of current staff vacancies for each of the three groups.

3. Has OPG eliminated vacant positions reported as unfilled over the period 2007-2009? Please indicate the number of vacant positions eliminated for each of the following three groups:
   - Niagara Plant Group;
   - R.H. Saunders Generating Stations; and
   - the Hydroelectric Central Groups.

4. Is OPG planning to fill current staff vacancies for the Niagara Plant Group, R.H. Saunders Generating Stations and the Hydroelectric Central Groups over the period 2010-2012?

## PWU Interrogatory 12

**Issue 6.1:** Is the test period Operations, Maintenance and Administration budget for the regulated hydroelectric facilities appropriate?

Ref (a): A news release from Ontario Power Generation posted on May 26, 2010 states:

> **[Toronto): Ontario Power Generation (OPG) is proceeding with a lower rate application to the Ontario Energy Board (OEB).**
>
> **The proposal, if accepted by the OEB, would result in an increase to the average residential bill of about $1.86 per month. OPG delayed filing its application last month so that it could find a way to lower its requested rate by more than 30 per cent.**
>
> **"We wanted to do more to reduce the impact of our request on ratepayers" said Tom Mitchell, OPG's President and CEO. "Last year, we found $90 million of internal savings and deferred out application. This year, we sharpened our pencils to shave our current rate application while still allowing OPG to produce safe, clean, reliable, low-cost electricity for Ontario."**
>
> **....**

**<u>Questions</u>:**

1. How much per cent lower are OPG's proposed hydroelectric payment amounts for 2011 and 2012 compared to the hydroelectric payment amounts contemplated at the time of OPG's stakeholder consultations on March 29 and April 1, 2010?

2. What are the dollar impacts on the hydroelectric revenue requirements of the reductions in the proposed payment amounts for 2011 and 2012 from those contemplated at the time of OPG's stakeholder consultations?

## OPERATING COSTS - Nuclear

## PWU Interrogatory 13

**Issue 6.3: Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?**

Ref (a): Exhibit G2, Tab 1, Schedule 1, Page 7 of 11, Lines 11-13

Ref (b): Exhibit G2, Tab 1, Schedule 1, Page 7, Lines 25-31; Page 8, Lines 1-2

Ref (c): Exhibit F2, Tab 1, Schedule 1, Attachment 1, Page 19

Ref (d): Exhibit F5, Tab 1, Schedule 1, Page 88 of 158

**Questions:**

Ref (a) states:

> **IMS supports OPG's internal work program needs for fuel channel, steam generator, and balance of plant inspections and specialized maintenance at Pickering A, Pickering B, and Darlington.**

Ref (b) states:

> **In the spring of 2008, OPG and Bruce Power entered in discussions concerning the future of these service agreements. Both parties wanted to obtain self-sufficiency for the provision of these specialized services. Bruce Power did not want to continue indefinitely with a sole source supply arrangement with OPG. OPG wanted to exit the provision of this non-core business in order to focus on improving outage performance at its stations. OPG's Pickering B Continued Operations initiative will also require extensive inspection and maintenance support. OPG also perceived increased risks and costs related to being able to co-ordinate outage schedules between OPG and Bruce, given the refurbishment of additional units at Bruce.**

1. Given that Inspection and Maintenance Services staff serve OPG as well as other parties (e.g. Bruce), and that the need for these services is increasing in OPG as the units age, how does OPG determine that the planned reduction in the highly skilled staff identified in Ref (c) (see below) will leave adequate staffing numbers to conduct the required inspection of OPG's aging units. In particular please reference the staffing needs for pressure tube life management.

Ref (c) outlines the staffing plan that identifies for 2012 a plan-over-plan reduction of 110 staff in inspection and maintenance services, or 150 based upon 2009 levels. It also identifies a plan-over-plan reduction, for 2012, of 46 staff in nuclear programs and training staff.

2. How will the proposed plan-over-plan Inspection and Maintenance staff reductions as well as the expected attrition rate of these staff over the 2010-2014 business plan impact OPG's need for training staff?

3. How are the nuclear training programs impacted by the reduction in training staff? If so, please describe how OPG will address the impacts.

Ref (d) states:

> **For the review period, approximately 7% of the Pickering A FLR was attributable to human performance…**

4. The FLR attributable to human performance at Pickering A is estimated at 7%. What impact will the plan-over-plan reduction in training staff have on OPG's ability to train new staff and enhance the capabilities of existing staff to reduce the percentage of FLR attributable to human performance?

## PWU Interrogatory 14

### Issue 6.3: Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?

Ref (a): Exhibit F2, Tab 3, Schedule 3, Attachment 1, Volume 3 of 3, Fuel Channel Life Management 10-62444, Partial Release Business Case Summary N-BCS-31100-10001-R000, PDF Pages 145 to 160

Ref (b): Exhibit F2, Tab 2, Schedule 3, Page 7 of 13

Ref (c): Exhibit A1, Tab 3, Schedule 1, Page 8, Lines 11-12

**Questions:**

1. Are the currently budgeted maintenance activities on other components sufficient to allow full exploitation of any extended life of pressure tubes? Please identify and discuss any major deficiencies and whether they are related to cost cutting measures.

2. What plans are in place to ensure that OPG or its contractors retain or attract skilled staff and train them for the requisite skill sets needed to carry out this specific project and any needed accompanying inspections, pressure tube/spacer replacements and engineering modifications?

3. Does the level of maintenance included in the 2010-2014 business plan reflect an expected refurbishment date of 2014-2016? How does the level of maintenance included in the 2010-2014 business plan assist this project in mitigating the risk of delays in the refurbishment schedules? Please identify and discuss any additional maintenance over and above the level included in the 2010-2014 business plan needed to fully exploit any success from this project.

Ref (a) PDF page 146 of 160 states:

> **As a result, OPG fuel channel experts have only medium confidence (up to 70%) that the pressure tubes in Darlington will achieve its nominal operating life of 210k EFPH. This is due to a lack of scrape data from the Darlington Units to support model predictions, the fact that Darlington Unit 3 scrape samples in 2002 exhibited some very high uptake trends that exceeded the upper bound of the CANDU 6 model, and that Darlington pressure tubes have some of the highest initial impurity hydrogen (Hinitial) values in any CANDU units. Other contributing factors include a scarcity of rolled joint Heq data and lack of a predictive rolled joint model. If the currently defined EOL limits are reached in Darlington earlier than 210k EFPH, then it may be necessary to advance the refurbishment schedule from the current plan of 2016 to as early as 2014. …Aside from issues concerning reaching this limit, it should be recognized that there little high hydrogen material property data from ex-service pressure tubes. Hence, there is insufficient data to provide the needed technical basis supporting operation of pressure tubes with Heq above the solubility limit and beyond.**

Ref (a) PDF page 146 of 160 states:

> **Until recently, Pickering B was not expected to exceed the EOl limits during the pressure tube nominal operating life of 210k EFPH. This expectation was related to the lower operating temperatures in Pickering B. However, the hydrogen and deuterium profiles through the inlet and outlet rolled joint regions of surveillance tube P6 M14 have challenged this belief (report issued December 2008). It appears that P6 M14 has much higher deuterium uptake in the compressive regions of the pressure tube and Heq exceeds the solubility limit at both inlet and outlet rolled joint burnish marks.**

4. The evidence states that there is "a lack of scrape data from the Darlington units to support model predictions", a "scarcity of rolled joint $H_{eq}$ data" and a "lack of a predictive rolled joint model". Are any of these deficiencies a result of past deferral or cancellations of recommended pressure tube work? If so, how were short-term production increased and costs reduced as a result of any deferrals? Please comment on whether these deferrals were advantageous given current circumstances described in the Partial Release Business Case Summary ("BCS") N-BCS-31100-10001-R000.

5. On page 8 of the Partial Release BCS Alternative 5, in speaking to the possibility of accelerating this program the BCS notes that while it would be "very beneficial" … " the current limitation in the work is resources – specifically technical experts, technicians and facilities". Could this shortfall in resources apply to work, such as inspections etc. that must be accomplished in parallel with this research to fully exploit any success in redefining fitness for service criteria? Are current or past cost cutbacks a contributing factor to this? Please elaborate.

6. Please explain the following entries in the risk table (pages 11 & 12) in the Partial Release BCS:

    a. "Funding not available in time to complete work" and "Other EOL work not funded - negating large benefit of this work". Would this risk be imposed as a result of additional cost cutting?

b. "FC LCM work not completed during outages to obtain the necessary data". Assuming that FC LCM refers to Fuel Channel Life Cycle Management. Has recommended or scheduled fuel channel life management work been deferred in the past? If there were deferrals, what plans are there to obtain sufficient inspection data to fully exploit whatever limits are set for both Darlington and Pickering i.e. in catching up on the deferred work and any additional work? What is the impact of these plans on costs, staffing and training needs and outage extensions going forward?

Ref (b) states the NPV of continued operation at Pickering B is $1.1 Billion.

Ref (c) states:

> **The Darlington Refurbishment project will require significant capital expenditures, estimated at between $6B and $10B (2009 dollars) over the life of the project.**

7. Why is this Life Management Project being undertaken so late in the life cycle that its timing might dictate the timing of the $6 billion to $10 billion Darlington refurbishment project and determine the success of the $1.1 B NPV continued operation project at Pickering?

## PWU Interrogatory 15

### Issue 6.3: Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?

Ref (a): Exhibit D2, Tab 1, Schedule 1, Pages 3 & 4 of 20 states:

> **Cost-focussed reductions in the OM&A portfolio have resulted in a significant deferral of planned work beyond the test period. The OM&A portfolio has been reduced from a budget of $118M for 2008 and 2009 as approved in EB-2007-0905, to a comparative budget of $111.7M in 2010, $108.3M in 2011 and $111.2M in 2012. Managing to the OM&A portfolio levels listed in Chart 1 will therefore require continued careful assessment and prioritization of work across OPG Nuclear.**

**Chart 1**
**Total Nuclear Project Portfolio Costs – Project OM&A and Capital**

| | $M | 2007 Actual | 2008 Actual | 2009 Actual | 2010 Budget | 2011 Plan | 2012 Plan |
|---|---|---|---|---|---|---|---|
| 1 | Project Portfolio – Capital | 186.5 | 163.5 | 159.4 | 172.0 | 172.0 | 172.0 |
| 2 | Project Portfolio – OM&A | 102.1 | 121.2 | 120.8 | 111.7 | 108.3 | 111.2 |
| 3 | **Total Project Portfolio** | **288.6** | **284.7** | **280.2** | **283.7** | **280.3** | **283.2** |

> **Starting in 2010, OPG has adjusted the accounting for project staff SAVH ("sickness, accident, vacation and statutory holiday") costs to more**

**accurately reflect total project costs. SAVH costs for staff dedicated to project work were previously accounted for as part of base OM&A (approximately $12M per year), but will now be included in the labour cost of staff working on capital or OM&A projects. For the OM&A project forecasts, the impact of this change is a transfer of budget and associated costs from base OM&A to project OM&A of $6.7M, $6.9M and $6.2M in 2010, 2011, and 2012, respectively. For capital projects, the cost of SAVH for dedicated project staff (approximately $5M - $6M per year) is being transferred from base OM&A to capital, but the capital project portfolio has been held at $172M as a further project cost control effort.**

**Questions:**

1. Please provide the information in Chart 1 in constant dollars.

2. Does Chart 1 above include or exclude the SAVH of approximately $12 million/year?

3. Does "cost-focussed reductions" imply that those cost reductions were made in isolation from their impact on net value? Please provide a list of the planned work deferred together with the impact of the deferrals on net present value over the station life cycles, taking into account both costs and benefits that would have accrued to the plants had the work been done on the original schedule. If this is not available please indicate how net value entered into the decisions to defer, or eliminate, planned work.

4. Please discuss any increase in risks resulting from deferrals of work.

5. Please comment on the impact of this deferral on future costs, staffing needs and performance metrics.

6. Please comment on the impact of aging on the need for additional work. Directionally would you expect an increasing workload? Please provide an explanation in your response. Is this consistent with the decisions to defer work into the future?

## PWU Interrogatory 16

### Issue 6.3: Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?

Ref (a): Exhibit F2, Tab 3, Schedule 3, Volume 3 of 3, PDF Pages 134-144 of 160, Calandria Tube Replacement Execution 13-40669 OM&A, Full Release Business Case Summary NK30-BCS-31230-00002-R000

**Questions:**

Ref (a) is a business case for the replacement of leaking calandria tube that resulted in the forced outage for April 2008 through to November 2008.

1. Did the unavailability of the calandria cutting tool in April 2008 contribute to the length of the April 2008 through November 2008 forced outage?

2. If your response to (1) is yes, please indicate the degree of extension of the forced outage that was attributable to the unavailability of a calandria tube cutting tool.

3. Please confirm that the original scheduled cutting tool readiness of September 2009 was a result of repair work related to the leak identified in 2005, planned for a date later than September 2009.

## PWU Interrogatory 17

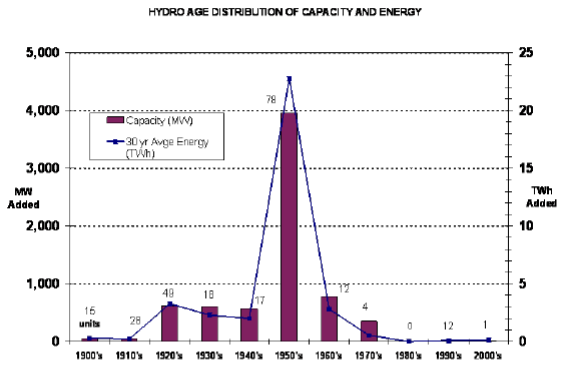
### Issue 6.3: Is the test period Operations, Maintenance and Administrative budget for the nuclear facilities appropriate?

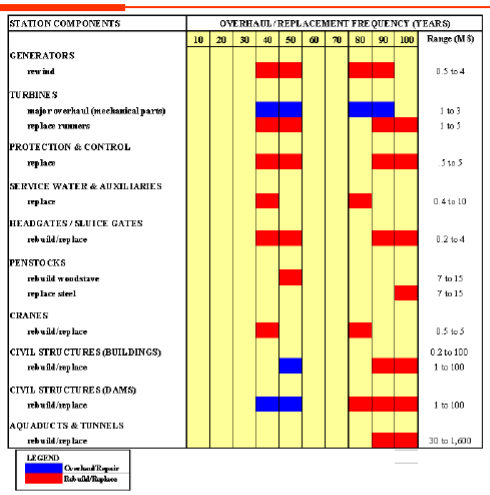
Ref (a): Exhibit F1, Tab 1, Schedule 1, Page 3, Line 12 to Page 14, Line 5 states:

> **Portfolio Approach to Investment Management**
> **Hydroelectric uses a structured portfolio approach to identify and prioritize projects for its investment program. Annual engineering reviews and plant condition assessments (conducted on a cycle of approximately seven to ten years) are performed to determine short-term and long-term expenditure requirements to sustain or improve each facility, and ensure continued safe operation. These may be followed by the preparation of a facility life cycle plan, which is performed on an as-needed basis for marginal assets or assets requiring significant expenditures relative to the value of the facility. This planning approach is designed to identify necessary capital, operating and maintenance expenditures for each facility, and direct limited corporate funds at the facilities that can best maintain or enhance the value of the hydroelectric business and OPG. The cornerstone of this approach is that safety, environmental, and other regulatory programs are of the highest priority compared to production and reliability initiatives.**
>
> **Streamlined Reliability Centred Maintenance Process**
> **Hydroelectric uses a process known as streamlined reliability centred maintenance process to optimize the preventive maintenance program at its facilities. The streamlined reliability centred maintenance process provides a consistent method of identifying, scheduling and executing maintenance activities. The concept of streamlined reliability centred maintenance dictates that the type and frequency of preventive maintenance applied to an individual component is determined based on the nature and consequences of failure (i.e., balance of cost versus risk). By focusing maintenance and associated support resources appropriately, Hydroelectric has been able to accomplish more of its base work program (including additional regulatory requirements), while minimizing the need for additional resources.**

Ref (b): Exhibit F1, Tab 1, Schedule 1, Attachment 1, Page 4:

## The Assets: Age Profile & Re-Investment Frequencies




- Average age of stations is 70 years.
- 70% of Hydro capacity built during the 1950's and 1960's.
- Equipment service lives range between 30 to 50 yrs.
- Structures such as dams, penstocks, powerhouses, canals, etc. typically require repairs every 25 to 50 years. Replacement of some civil components is required every 40 to 75 years (eg, wood stave penstocks, stop-logs, etc).
- There is risk of deteriorating performance and safety without significant continued re-investment (due to demographics of portfolio, and large number and variability of stations/units/equipment).
- Re-investment levels of about 1% to 3% per yr of "replacement cost" are considered reasonable by industry experts. Hydro has invested approximately 0.5% to 1.5% per yr of "replacement cost" in the past 10 years (excludes new facilities). Determination of appropriate investment levels should consider station/fleet age and condition, type of equipment, station role (peaking vs base), past investment strategy (eg, harvesting), reliability targets, etc.
- The Business Plan addresses the need to sustain and improve the existing assets for long term per the Hydro mandate. Plant Condition Assessment/Life Cycle Plans and Portfolio Approach to Asset Management used to determine and prioritize investments (Appendix A).

ONTARIO POWER GENERATION

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**Questions:**

1. Ref (a) provides information related to hydroelectric assets life cycle assessment and maintenance process, and Ref (b) provides information on hydroelectric asset age profile and re-investment frequencies. Please provide similar information for nuclear generation.

2. Please provide detailed descriptions of OPG's nuclear engineering review and plant condition assessment processes.

## PWU Interrogatory 18

**Issue 6.3**: **Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?**

Ref (a): A news release from Ontario Power Generation posted on May 26, 2010 states:

> **[Toronto): Ontario Power Generation (OPG) is proceeding with a lower rate application to the Ontario Energy Board (OEB).**
>
> **The proposal, if accepted by the OEB, would result in an increase to the average residential bill of about $1.86 per month. OPG delayed filing its application last month so that it could find a way to lower its requested rate by more than 30 per cent.**

**"We wanted to do more to reduce the impact of our request on ratepayers" said Tom Mitchell, OPG's President and CEO. "Last year, we found $90 million of internal savings and deferred out application. This year, we sharpened our pencils to shave our current rate application while still allowing OPG to produce safe, clean, reliable, low-cost electricity for Ontario."**

**....**

**Questions:**

1. How much per cent lower are OPG's proposed nuclear payment amounts for 2011 and 2012 compared to the nuclear payment amounts contemplated at the time of OPG's stakeholder consultations on March 29 and April 1, 2010?

2. What are the dollar impacts on the nuclear revenue requirements of the reductions in the proposed payment amounts for 2011 and 2012 from those contemplated at the time of OPG's stakeholder consultations?

## PWU Interrogatory 19

**Issue 6.4: Is the benchmarking methodology reasonable? Are the benchmarking results and targets flowing from those results for OPG's nuclear facilities reasonable?**

Ref (a): Exhibit F2, Tab 1, Schedule 1, Attachment 3, Page 2

Ref (b): Exhibit F5, Tab 1, Schedule 2, Page 10 of 64

Ref (c): Exhibit F5, Tab 1, Schedule 1, Page 88 of 158

**Questions:**

1. Please indicate if the Bruce CANDU units included in the benchmark study have new boilers.

2. Would new boilers be expected to improve plant performance?

3. Please indicate how the benchmarking was used to set the top-down OMA and capital targets issued by the Chief Nuclear Operator in a manner that ensures consistency with safety and performance metrics.

Ref (a) shows a table outlining the technology differences between OPG's units and other nuclear technologies.

4. Please provide your estimates of the qualitative and quantitative adjustments to the benchmarking that should be done to reflect the differences in staffing requirements between CANDU units and BWR and PWR units.

Ref (b) states:

> **It should be noted that OPG's financial and operational performance relative to its peers is impacted by differences in design technology, the number of reactors onsite, the geographic size of the site, reactor age, and operational condition in addition to low capability factors at both the Pickering A and Pickering B sites.**

5. What is the effect of the following variables on the comparative non-fuel $/MWh in the gap analysis:

   a. Generator output in MW.

      i. How does unit size impact the maintenance effort per MW?

      ii. Please provide your estimates of the effect of unit size on $/MWh performance metrics.

      iii. What corrections were applied to the analysis and/or results of the ScottMadden benchmarking study to reflect this scaling?

   b. The number of units per station.

      i. How does the number of units impact the maintenance effort per MW?

      ii. What corrections were applied to the analysis and or results of the ScottMadden benchmarking to reflect this scaling?

      iii. Please provide the size of the units and the corresponding number of all the units included in the ScottMadden benchmarking study together with their non-fuel $/MWh.

   c. What is the impact of the number of steam generators (12 per unit at Pickering, 4 per unit at Darlington, vs. 8 per unit at Bruce, 2-4 units at PWR plants, 0 units at BWR plants) and on maintenance efforts per MW.

   d. Collectively the main coolant pumps (40 per unit at Pickering vs. 4 per unit at Darlington, 2-4 units for PWR and 2 units for BWR Units); the large isolation valves (40/unit at Pickering, 0 at Darlington and 0 for PWR, 2 for BWR units); and the fueling machines.

   e. The carbon steel in the CANDU reactors heat transport system vs. stainless steel in the BWR and PWR reactors. Please indicate the influence of this on the non-fuel $/MWh benchmarking.

   f. The reactor age and resulting mitigation of the accumulated and ongoing deterioration in plant components including boilers, calandria tubes and pressure tubes and feeders.

i. Please provide the maintenance and inspection cost and the number of planned and forced outage days attributable to these components for each of OPG's nuclear plants in the past decade.

ii. What is the contribution of inspection and maintenance efforts related to these and other components to the benchmark comparison with CANDU and with BWR and PWR reactors?

g. The number of pressure tubes.

h. Other variables (e.g. special circumstances, such as the requirement to maintain an electrical connection between Pickering B and Pickering A).

Ref (c) states:

> **For the review period, approximately 7% of the Pickering A FLR was attributable to human performance, 42% to equipment reliability, and 51% percent to design basis.**

6. Please confirm that based on the OPG and Bruce CANDU units, CANDU technology requires significantly higher staffing levels in comparison with BWR and PWR per MW.

## PWU Interrogatory 20

**Issue 6.4: Is the benchmarking methodology reasonable? Are the benchmarking results and targets flowing from those results for OPG's nuclear facilities reasonable?**

Ref (a): Exhibit F5, Tab 1, Schedule 2, Pages 43 & 44 of 64. Tables outline scenarios with significant changes to non-fuel operating costs for Darlington, Pickering A and Pickering B. However, there is no change in production between the five scenarios within the period to 2014. For example, in 2012 cost for Darlington range from $764 million to $706 million; for Pickering A from $344 million to $470 million; and for Pickering B from $763 million to $577 million. There is no change in production for any of the five scenarios.

**Questions:**

1. What were the changes (e.g. performance levels) of other performance metrics for each plant over the plant life cycle as a result of these cost cuts?

2. How was the information provided in response to (1) used in setting targets for non-fuel operating costs?

## OPERATING COSTS – Corporate Costs

## PWU Interrogatory 21

**Issue 6.8: Are the 2011 and 2012 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?**

Ref (a): Exhibit F4, Tab 3, Schedule 1, Page 8, Lines 16-18 states:

> **As a result of collective bargaining, the general wage increases for the PWU have been between 2 per cent and 3 per cent for the past number of years, and this trend continues for the years 2008-2012.**

Ref (b): Exhibit F4, Tab 3, Schedule 1, Page 9, Lines 7-9 states:

> **As a result of a collective bargaining, the general wage increases for the Society have been between 2 per cent and 3 per cent for the past number of years, and this trend continues through 2010, the end of the current contract for the Society.**

**Questions:**

1. Has OPG compared the wage escalations contained in its current collective agreements to data regarding the escalations contained in other Ontario and collective agreements (e.g. major public sector settlements, all public sector settlements, and the Transportation, Communication and Utilities sector) entered into at or about the same time as compiled by, for example, the Ministry of Labour or Statistics Canada?

2. If the response to (1) is yes, please provide the results of such comparisons.

## PWU Interrogatory 22

**Issue 6.8: Are the 2011 and 2012 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?**

Ref (a): Exhibit F4, Tab 3, Schedule 1, Page 5, Line 29 to Page 6, Line 5 states:

> **Pursuant to the Ontario Labour Relations Act, OPG was required, as a successor employer to Ontario Hydro, to adopt collective agreements covering the employees transferred to OPG from Ontario Hydro on April 1, 1999. For the majority of employees within OPG that are unionized, items such as wages, pensions, and benefits can only be changed through the collective bargaining process. In this environment, it is necessary to balance the business requirements and long-term company interests related to maintaining a positive relationship with its unions, while recognizing that the unions, in most cases, have the right to strike. Since OPG was created, new**

**collective agreements have been negotiated by OPG with both the PWU and the Society.**

**Questions:**

1. Please confirm that OPG's Collective Agreements with the PWU and the Society are binding legal contracts.

2. Please describe the processes and steps involved in collective bargaining with unions and all the relevant context considerations (factors), internal or external to OPG and the unions that are applied to arrive at the final collective agreement.

3. If the levels of compensation in comparable firms is a factor in (2), please comment on how the levels of compensation within OPG might be affected by levels of compensation in comparable firms.

## PWU Interrogatory 23

**Issue 6.9: Are the "Centralized Support and Administrative Costs" (which include Corporate Support and Administrative Service Groups, Centrally Held Costs and Hydroelectric Common Services) and the allocation of the same to the regulated hydroelectric business and nuclear business appropriate?**

Ref (a): Exhibit F3, Tab 1, Schedule 2, Page 2, Lines 17-19. In comparing 2009 Actual versus 2009 Budget for the allocation of corporate costs to the regulated hydroelectric segment, OPG reports:

> **…lower OEB related costs due to a decision to defer the rate application, and efforts to manage staff vacancies.**

Ref (b): Exhibit F3, Tab 1, Schedule 2, Page 2, Lines 28-30. In comparing 2008 Actual versus 2008 Budget for the allocation of corporate costs to the regulated hydroelectric segment, OPG submits:

> **Actual corporate support costs were $2.0M lower than budget in 2008, primarily due to lower costs related to Information Technology special initiatives, a number of one-time IT credit adjustments and hiring lags, partly offset by economic increases.**

Ref (c): Exhibit F3, Tab 1, Schedule 2, Page 3, Lines 12-15. In comparing 2007 Actual versus 2007 Budget for the allocation of corporate costs to the regulated hydroelectric segment, OPG reports:

> **Corporate support costs were $1.4M lower than budget in 2007. The lower costs were mainly due to staff vacancies, lower outsourcing agreement gainshare, OEB-related activities and deferral of 2007 safety conference, partly offset by higher project OM&A (for infrastructure asset refresh work), support function review, and tax advisory costs.**

Reference (d): Exhibit F3, Tab 1, Schedule 2, Page 4, Lines 18-21. In comparing 2009 Actual versus 2009 Budget for the allocation of corporate costs to the nuclear segment, OPG submits:

> **Actual corporate support costs were $32.9M lower than budget in 2009, primarily due to lower OEB costs due to a decision to defer the rate application, lower advertising costs, lower costs in Information Technology related to special initiatives, and efforts to manage staff vacancies.**

Ref (e): Exhibit F3, Tab 1, Schedule 2, Page 5, Lines 2-4. In comparing 2008 Actual versus 2008 Budget for the allocation of corporate costs to the nuclear segment, OPG submits:

> **Corporate support costs were $31.5M lower than budget in 2008, primarily due to lower costs in Corporate Affairs advertising and lower costs in Information Technology relating to special initiatives, a number of one-time IT credit adjustments and hiring lags.**

Reference (f): Exhibit F3, Tab 1, Schedule 2, Page 5, Lines 17-20. In comparing 2007 Actual versus 2007 Budget for the allocation of corporate costs to the nuclear segment, OPG submits:

> **Corporate support costs were lower than budget by $9.8M in 2007. The lower costs were mainly due to staff vacancies, lower NHSS outsourcing agreement gainshare, lower OEB related activities and deferral of 2007 safety conference, partly offset by higher project OM&A (for infrastructure asset refresh work), support function review, and tax advisory costs.**

**Questions:**

1. OPG has reported staff vacancies and hiring lags in relation to the allocation of corporate support costs to its nuclear and regulated hydroelectric businesses over the period 2007-2009. Please indicate the corporate functions that have been affected by staff vacancies or hiring lags reported by OPG over 2007-2009. In particular, please refer to the vacancies related to the provision of corporate support services to the nuclear and regulated hydroelectric businesses.

2. Please indicate the number of staff vacancies for 2007, 2008 and 2009. In particular, please refer to the vacancies related to the provision of corporate support services to the nuclear and regulated hydroelectric businesses.

3. Has OPG's provision of corporate support services to its nuclear and hydroelectric regulated businesses been impacted due to staff vacancies or hiring lags reported over the period 2007- 2009. If so, please provide a brief description of efforts to manage staff vacancies.

4. What is the current status of OPG's staff vacancies in relation to the provision of corporate support services to its regulated businesses? Please indicate the number of currents unfilled vacancies.

5. Is OPG planning to fill vacancies for the corporate groups over the period 2010-2012? Please refer to the vacancies related to the provision of corporate services to the nuclear and regulated hydroelectric businesses.

# DEFERRAL AND VARIANCE ACCOUNTS

## PWU Interrogatory 24

**Issue 10.2: Are the balances for recovery in each of the deferral and variance accounts appropriate?**

Ref (a): Exhibit H1, Tab 2, Schedule 1, Page 1, Lines 20-23. The evidence states:

> **OPG is proposing to clear the 2010 projected balances rather than 2009 actual balances as the bulk of the change in balances in 2010 consists of amortization as approved in EB-2009-0174 and an addition to the Tax Loss Variance Account, which is a determined, not forecast amount.**

**Question:**

1. Please provide the impact on the proposed total balance to be cleared, and the associated ratepayer impact, of using the 2009 actual balances adjusted only for the amortization approved in EB-2009-0174 and the determined addition to the Tax Loss Variance Account, but excluding any other forecasted balance changes in 2010.

## PWU Interrogatory 25

**Issue 10.3: Is the disposition methodology appropriate?**

Ref (a): Exhibit H1, Tab 1, Schedule 1, Page 6 states that tax losses were allocated to hydroelectric and nuclear based on the proportion of requirement reduction incorporated into the EB-2007-0905 Payment Order for each business.

**Questions:**

1. OPG used certain methodologies to derive distinct allowances for PILs for each business, suggesting it is possible to associate taxable income with each business. That being the case, why did OPG not use a similar approach to allocate the tax losses to each business, based on the extent to which the losses were actually incurred in each business?

2. Please provide the impact of following the approach suggested in part (1) on the balances allocated to each business.

## PWU Interrogatory 26

### Issue 10.3: Is the disposition methodology appropriate?

Ref (a): Exhibit H1, Tab 2, Schedule 1, Pages 3 & 5 state that OPG proposes to extend the amortization of balances in the Tax Loss Variance Accounts to 46 months, to lessen ratepayer impact.

**Question:**

1. Please provide a comparison of the ratepayer impacts assuming the balances in these accounts (for each of hydroelectric and nuclear) were amortized over the same 22 month period being proposed to clear the balances in all other deferral and variance accounts.

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