GEC Interrogatory #001

Ref: Ex. D4-T1-S1

Issue Number: 2.2
Issue: Is OPG's proposal to include CWIP in rate base for the Darlington Refurbishment Project appropriate?

Interrogatory

Page 8 quotes the Louisiana PSC to the effect that "the recovery of a current cash return on CWIP may be needed to protect a utility's financial integrity…"

a) Does Mr. Luciani believe that this consideration applies to OPG? If so, please provide any evidence that a cash return on CWIP is needed to protect OPG's financial integrity.

Response

a) OPG understands that Mr. Luciani believes that this consideration applies to OPG. Financial integrity is not a simple yes or no assessment. As noted in the CRA paper (page 10), even for utilities with governmental support for their financing, a significant mismatch between utility cash flow and revenues can lead to credit quality concerns, and, as such, stand-alone consideration of the utility's operation and risk is an important control mechanism for maintaining credit quality. The recovery of a cash return on CWIP will help ensure that OPG is operating on a financially sustainable basis and thereby, on an incremental basis, improve its financial integrity.

GEC Interrogatory #002

Ref: Ex. D4-T1-S1

Issue Number: 2.2
Issue: Is OPG's proposal to include CWIP in rate base for the Darlington Refurbishment Project appropriate?

Interrogatory

Page 8 quotes the Louisiana PSC to the effect that "the recovery of a current cash return on CWIP may be needed… to maintain an acceptable credit rating…."

a) Does Mr. Luciani believe that this consideration applies to OPG? If so, please provide any evidence that a cash return on CWIP is required in that OPG or the Province would not "maintain an acceptable credit rating" in the absence of CWIP in rate base.

Response

a) Yes, OPG understands that Mr. Luciani believes this consideration applies to OPG. A credit rating agency takes into account a number of items in determining utility credit ratings and a current cash return on CWIP is one of those items. Credit rating agencies, as part of their review, will look at a publicly-supported commercial entity such as OPG on a stand-alone basis in evaluating credit risk. As such, a cash return on CWIP will be helpful to OPG, on an incremental basis, in such a review and maintaining an acceptable credit rating.

GEC Interrogatory #003

Ref: Ex. D4-T1-S1

Issue Number: 2.2
Issue: Is OPG's proposal to include CWIP in rate base for the Darlington Refurbishment Project appropriate?

Interrogatory

Page 8 quotes the Louisiana PSC to the effect that "the recovery of a current cash return on CWIP may be needed…to prevent an undue increase in the utility's cost of capital (p. 8)

a) Does Mr. Luciani believe that this consideration applies to OPG? If so, please provide any evidence that OPG's cost of capital would increase unduly if it is not granted a current cash return on CWIP.

Response

a) Yes, OPG understands that Mr. Luciani believes that this consideration applies to OPG. While the government supports OPG's financing needs, the implicit cost of this financing is dictated by OPG's financial conditions. As noted in Ex. L-07-001, a cash return on CWIP will help ensure that OPG is operating on a financially sustainable basis and from a stand-alone perspective will help, on an incremental basis, minimize the cost of that financing.

GEC Interrogatory #004

Ref: Ex. D4-T1-S1

Issue Number: 2.2
Issue: Is OPG's proposal to include CWIP in rate base for the Darlington Refurbishment Project appropriate?

Interrogatory

Regarding the first paragraph on page 9, please provide OPG's projection of the payment amount for the regulated hydroelectric facilities and the payment amount for the nuclear facilities for each year for which OPG has such projections.

a) Please provide the projection of payment amounts both with a cash return on CWIP and without.

Response

Table 1 below identifies the nuclear payment amounts for 2011 – 2102 including and excluding Construction Work in Progress ("CWIP") on Darlington Refurbishment project expenditures. The impact on 2011 – 2012 rates is estimated to be $0.4/MWh. The corresponding impact on forecast 2013 – 2014 payment amounts is estimated to be $1.5/MWh.

Table 1
Nuclear Payment Amount ($/MWh)

	2011-2012	2013-2014
With CWIP on the Darlington Refurbishment Project	55.3	
Without CWIP on the Darlington Refurbishment Project	54.9	
Impact of CWIP	0.4	1.5

There is no impact on projected regulated hydroelectric payment amounts as Darlington Refurbishment is the only project for which the CWIP treatment is being proposed.

For 2013 and 2014, OPG is only showing CWIP impacts and not forecast payment amounts. Forecasts of future payment amounts are irrelevant to the OEB's determination of payment amounts in this proceeding. They also would be speculative given that the payment amounts for regulated nuclear and hydroelectric generation in 2013 – 2014 will depend on the outcome of this proceeding; the forecasts for prescribed facility costs and production underlying any future application for payment amounts covering 2013 and 2014, and the outcome of any such future application.

Witness Panel: Deferral and Variance Accounts, Payment Amounts and Regulatory Treatments

GEC Interrogatory #005

Ref: Ex. D4-T1-S1

Issue Number: 2.2
Issue: Is OPG's proposal to include CWIP in rate base for the Darlington Refurbishment Project appropriate?

Interrogatory

Please provide OPG's projection of all the charges for its services for each year for which OPG has such projections.

Response

OPG's projected rates for 2011 – 2012 are documented in its rate proposal. OPG declines to provide projections of payment amounts for future years as they are speculative and not relevant to the determination of payment amounts in the test period as discussed in response to interrogatory Ex. L-07-004.

GEC Interrogatory #006

Ref: Ex. D4-T1-S1

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

Interrogatory

Please provide any projections of which OPG is aware of average consumer rates for electricity in Ontario.

Response

OPG does not have any projections of average consumer electricity rates in Ontario.

GEC Interrogatory #007

Ref: Ex. D4-T1-S1

Issue Number: 2.2
Issue: Is OPG's proposal to include CWIP in rate base for the Darlington Refurbishment Project appropriate?

Interrogatory

Page 9 states that "the revenue requirement under standard cost-of-service ratemaking associated with the recovery of the capital expended on a new plant is said to be 'front end loaded'".

a) Please state whether the inclusion of CWIP in rate base increases or decreases the front-end loading of cost recovery.

b) Please provide OPG's projection of the annual revenue recovery for Darlington Refurbishment for each year through 2054, with CWIP in rate base.

c) Please provide OPG's projection of the annual revenue recovery for Darlington Refurbishment for each year through 2054, if CWIP is not in rate base.

d) Does Mr. Luciani agree that the total revenue recovery of the Darlington Refurbishment through 2025 would be greater if CWIP is in rate base than if CWIP is capitalized? If Mr. Luciani disagrees, please explain the basis for that disagreement.

Response

a) From the perspective of the rate increase required at the time of in-service, the inclusion of CWIP in rate base decreases the amount by which recovery is front-end loaded. Of course, recovery takes place in smaller amounts earlier than it otherwise would, meaning, by definition, that more revenue is recovered in the early years. Nonetheless, the rate increase required in any individual year after the asset is in service would be lower with CWIP in rate base, as well as the total recovery in any year. The cumulative revenue recovery over the life of the asset will also decrease and the crossover point in cumulative revenue recovered should take place well before the midpoint of the asset's life.

b) OPG has only developed a very preliminary estimate of the range of costs for the Darlington Refurbishment project. OPG is not providing the requested projection as it would be too speculative to be of any value.

c) OPG has only developed a very preliminary estimate of the range of costs for the Darlington Refurbishment project. OPG is not providing the requested projection as it would be too speculative to be of any value.

d) While Mr. Luciani has not seen the specific Darlington Refurbishment figures, OPG understands that he believes this is likely to be the case on a cumulative total revenue recovered basis. Again, the cumulative revenue recovery over the life of the asset will decrease, and the crossover point in cumulative revenue recovery should take place well before the midpoint of the asset's life.

GEC Interrogatory #009

Ref: Ex. D4-T1-S1

Issue Number: 2.2
Issue: Is OPG's proposal to include CWIP in rate base for the Darlington Refurbishment Project appropriate?

Interrogatory

Regarding the statement that "In effect, CWIP in rate base provides a smoothing, or phase-in effect on rates, and thereby mitigates the rate shock that would take place when the large new plant is placed into service."

a) Is the Darlington Refurbishment a "large new plant"?

b) Has OPG surveyed Ontario consumers to determine whether they prefer to pay for power projects before they enter service or to bear the "rate shock" resulting from deferring the return on CWIP? If so, please provide the survey vehicle and all results and analyses.

c) Can "rate shock" also be avoided by deferring some costs past the in-service date, so that the phase-in occurs after the in-service date?

Response

a) The Darlington Refurbishment Project is a "large new investment", the outcome of which will result in increased energy availability over the base case for a number of years. Integrating CWIP in rate base for this large new investment will still have the same effect as outlined in the reference above.

b) No.

c) While the deferral of inclusion of costs in rate base would tend to dampen rate shock, such an approach is unlikely to stimulate infrastructure investment, an outcome that was indicated as desirable in the OEB's consultation process (EB-2009-0152). Further, actively delaying cost recovery would have a negative impact on maintenance of acceptable credit ratings for utilities and would likely result in increases to a utility's cost of capital, both outcomes that are counter-productive. Finally, delaying inclusion of project costs would only allow more time for interest charges to accumulate, thereby increasing the overall cost of any given project.

GEC Interrogatory #010

Ref: Ex. D4-T1-S1

Issue Number: 2.2
Issue: Is OPG's proposal to include CWIP in rate base for the Darlington Refurbishment Project appropriate?

Interrogatory

With regard to the statement that "Earlier cash returns on assets with long construction periods provide more certainty to investors which should encourage a greater willingness to invest" (p. 11), please clarify whether the term "investors" refers to equity or debt investors.

a) If it refers to equity investors, does Mr. Luciani believe that the Province's willingness to invest in OPG would be increased by placing CWIP in rate base?

b) If it refers to debt investors, how is this point different from the discussion of borrowing costs in Section 3.2?

Response

The reference is inclusive of equity and debt investors.

a) OPG understands that Mr. Luciani's belief is yes, as measured on a stand-alone basis from a commercial perspective. The statement applies to equity investors interested in a commercially-viable investment. OPG has a commercial mandate from its shareholder to operate on a financially sustainable basis and maintain the value of its assets (see OPG 2009 Financial Results, page 15). Inclusion of CWIP in rate base is consistent with this commercial mandate.

b) The reference is inclusive of equity and debt investors. For debt investors, it would be related to credit quality and the willingness to invest on any reasonable terms.

GEC Interrogatory #011

Ref: Ex. D4-T1-S1

Issue Number: 2.2
Issue: Is OPG's proposal to include CWIP in rate base for the Darlington Refurbishment Project appropriate?

Interrogatory

With regard to the quote from the NRRI publication on pp. 11-12 concerning tax financing of schools and transit projects, does Mr. Luciani agree that these projects are generally funded by bonding?

Response

OPG understands that Mr. Luciani has not examined school and transit project financing, and does not know the extent to which school buildings and transit projects are funded by short-term or long-term bonds or pay-as-you-go arrangements. The NRRI quote cites school buildings and mass transit projects as supporting examples for the proposition that early cost recovery for utility investment is not unique.

GEC Interrogatory #012

Ref: Ex. D4-T1-S1

Issue Number: 2.2
Issue: Is OPG's proposal to include CWIP in rate base for the Darlington Refurbishment Project appropriate?

Interrogatory

With regard to the statement that, during the construction period of a baseload plant, "The utility, for example, may not enter into the same amount of longer-term contracts, or may not build as many shorter-term assets given that a baseload plant will be coming into service. That is, the new plants will affect actual utility costs and rates during the construction period with or without CWIP in rates." (p. 12)

a. Please describe all the "longer-term contracts" that OPG would enter into in the absence of the Darlington Refurbishment.

b. Please explain why those "longer-term contracts" would be reflected in rates during the Darlington Refurbishment construction period.

c. Please define the "shorter-term assets" that Mr. Luciani is describing in this section.

d. Please describe all the "shorter-term assets" that OPG would build in the absence of the Darlington Refurbishment.

Response

a) OPG has no plans to enter into "longer-term contracts" in the absence of Darlington Refurbishment. However, if Darlington is not refurbished then the baseload supply that would have been provided by this station will have to be procured from some other generation source. OPG expects that such contracting would be done by the Ontario Power Authority.

b) Whether or not there would actually be costs related to the "longer-term contracts" in rates during this period would depend on the nature and terms of these contracts, or whether there was a need to make early investments (e.g., transmission or distribution investments) in order to access the supply provided via the contracts. The point in the referenced quote is simply that in the context of a utility supply, decisions about one project in the portfolio can affect decisions about other parts of the supply portfolio.

c) In this context "shorter-term assets" refers to those generation supply options that could be designed, permitted, procured, constructed and commissioned in a shorter timeframe than the option under consideration by the utility. These assets would help bridge the system until the baseload plant was completed and placed into service.

d) Please see response to Part a) above.

GEC Interrogatory #013

Ref: Ex. D4-T1-S1

Issue Number: 2.2
Issue: Is OPG's proposal to include CWIP in rate base for the Darlington Refurbishment Project appropriate?

Interrogatory

With regard to the statement that regulators "have often disregarded the used and useful concept when the reliability of future service is in doubt" (p. 12), please explain whether the reliability of future service to Ontario consumers would be in doubt if OPG did not earn a cash return on CWIP, and if so, why.

Response

The excerpt above is taken from FERC Docket EL06-54-000, Order Granting Petition for Declaratory Order and Denying Motion to Defer Consideration, June 20, 2006. The full excerpt is as follows:

> In light of lengthening construction cycles, relatively high inflation, and the proportional significance of capital financing costs in relation to overall project costs, this Commission – as well as many state regulatory authorities – have examined the basis for the inclusion of CWIP from rate base and **have often disregarded the used and useful concept when the reliability of future service is in doubt** … it must be reemphasized that the used and useful concept, if administered inflexibly and without regard to other equitable and policy considerations may fail the interests of both the electric utility industry and its ratepayers. [emphasis added]

It appears to OPG that FERC is simply putting the "used and useful" concept into perspective vis-a-vis other regulatory considerations, including the need to support new investment through the inclusion of CWIP in rate base.

OPG has no information to suggest that the reliability of future service for Ontario consumers would be in doubt if OPG did not earn a cash return on CWIP.

GEC Interrogatory #014

Ref: Ex.D4-T1-S1

Issue Number: 2.2
Issue: Is OPG's proposal to include CWIP in rate base for the Darlington Refurbishment Project appropriate?

Interrogatory

Please provide the most recent rating report for OPG from Standard & Poor's (S&P) and Dominion Bond Rating Service (DBRS).

Response

The ratings reports included with the prefiled evidence at Ex. A2-T3-S1 are the most recent reports available.

GEC Interrogatory #017

Ref: Ex. D2-T2-S1

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

Interrogatory

Regarding the statement on page 13: "Analysis has shown that OPG's large nuclear operating fleet allows the sharing of Corporate and Support Costs over a broader base of generation, resulting in economies of scale in these costs. A decision not to proceed with the refurbishing of Darlington would add upward pressure on Corporate and Nuclear Support costs on the remainder of OPG's nuclear fleet", given the Pickering nuclear station will be shut down in 2020, please explain how a decision not to refurbish Darlington will increase support costs for "the remainder of OPG's nuclear fleet."

Response

The statement referenced in the question was written at a time when the decision to not refurbish the Pickering B Generating Station units had not yet been made. The statement is an observation concerning a potential benefit of proceeding with Darlington Refurbishment and does not affect the economic feasibility assessment that determined with high confidence that the project will have a Levelized Unit Energy Cost ("LUEC") of between $0.06/kWh and $0.08/kWh (2009$).

GEC Interrogatory #019

Ref: Ex. D2-T2-S1

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

Interrogatory

In regard to the statement on page 13 of Attachment 4 of D2-2-1: “If Pickering were to also cease operations in the late 2010s, and no Nuclear New Build were to be in-service by that period, significant workforce downsizing would be required in the OPG nuclear program. The loss of these high quality jobs would have a significant impact on Durham Region”:

a) Please provide expected retirement schedule for OPG’s nuclear workforce over the next two decades.
b) Does OPG agree that the provision of replacement power from renewables and conservation would increase employment elsewhere in the province?

Response

a) The following chart sets out the number of employees who will become eligible to retire each year and the forecast of actual retirements. These numbers include all employees in the Nuclear organization, including those in Refurbishment and New Build.

Nuclear Retirement Eligibility & Retirement Forecasts
(based on 2009 Year End)

	Number of Staff	
Year	Become Eligible*	Retirement Forecast
2010	280	200
2011	320	250
2012	320	290
2013	320	340
2014	270	380
2015	300	420
2016	330	310
2017	340	310
2018	330	320
2019	260	310
2020	270	n/a**
2021	240	n/a
2022	200	n/a
2023	180	n/a
2024	200	n/a
2025	210	n/a
2026	210	n/a
2027	220	n/a
2028	250	n/a
2029	240	n/a
2030	240	n/a

* As of Dec 31, 2009, over 900 Employees were already eligible to retire
** n/a = not available

b) OPG has no information related to this question.

GEC Interrogatory #020

Ref: Ex. D2-T2-S1

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

Interrogatory

An Integrated Safety Review (ISR) is required to be approved by the Canadian Nuclear Safety Commission before the refurbishment of the Darlington can take place. An ISR will require a comparison of the Darlington station against current nuclear safety requirements and require upgrades where appropriate. Please describe how safety upgrades are determined? Specifically, please describe how cost benefit analysis will be considered and approved for the Darlington refurbishment.

Response

The Integrated Safety Review ("ISR") is a comparison of the Darlington plant against a list of modern codes and standards agreed to by the Canadian Nuclear Safety Commission ("CNSC") and consistent with international practices which are used to determine the extent to which the plant conforms to modern high-level safety goals and requirements. Gaps with respect to modern requirements are prioritized based on their impact on nuclear safety.

Gaps which are determined to be high priority (i.e., having direct, significant impact on nuclear safety) are assessed using an industry standard benefit-cost analysis process developed and approved by the CANDU Owner's group and accepted by the CNSC. Options for resolution could include physical changes to the plant, operational changes, or other options depending on the nature of the gap. The process weighs the nuclear safety benefits against cost considerations to assess whether the improvement in nuclear safety is sufficient to warrant expenditure of the costs involved.

Gaps determined to be low priority (i.e., having indirect or insignificant impact on nuclear safety) are dispositioned without the use of the benefit cost analysis process.

GEC Interrogatory #021

Ref: Ex. D2-T2-S1

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

Interrogatory

Regarding the statement on page 7 of Attachment 2 of D2-2-1: "Time required to obtain Canadian Nuclear Safety Commission (CNSC) approval of the ISR, currently estimated as 2 years from the Final ISR submission (Tentative Completion Date (TCD): December 2013)", how long did it take for OPG to gain approval from the CNSC for approval of the ISR for the proposed refurbishment of the Pickering B nuclear station?

Response

OPG did not obtain Canadian Nuclear Safety Commission's ("CNSC") approval of the integrated safety review ("ISR") for the proposed refurbishment of the Pickering B nuclear station.

OPG submitted the Pickering Nuclear Generating Station Final ISR Report to the CNSC on September 25, 2009. The OPG Board of Directors decided not to proceed with the Pickering B Refurbishment Project on November 19, 2009, a decision concurred by the Minister of Energy in a February 4, 2010 memo (Ref: Ex. D2-T2-S1, Attachment 3). This decision was formally communicated to the CNSC on March 31, 2010. Subsequently, OPG requested CNSC's closure of the ISR study.

GEC Interrogatory #022

Ref: Ex. D2-T2-S1

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

Interrogatory

Regarding the statement on page 7 of Attachment D2-2-1: "Time required obtaining CNSC approval of the EA (TCD: October 2012) – currently estimated as approximately 18 months from the submission of the EA Project Description (TCD: May 2011)". How long did it take for OPG to gain approval from the CNSC for its environmental assessment on the proposed Pickering B nuclear station following its submission of an EA project description?

Response

It took 31 months following the submission of the Environment Assessment ("EA") project description until the Canadian Nuclear Safety Commission ("CNSC") accepted its staff EA report for the proposed Pickering B Nuclear Station. The key dates are noted below:

EA project description issued to CNSC	June 15, 2006
OPG Submission of Pickering B EA Screening Report	December 17, 2007
CNSC issued its final Pickering B EA Screening Report	October 10, 2008
One-day public hearing to consider results of EA Screening Report	December 10, 2008
CNSC acceptance of EA Screening Report	January 26, 2009

GEC Interrogatory #023

Ref: Ex. D2-T2-S1

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

Interrogatory

Please provide a breakdown of the costs associated with OPG's environmental, safety and economic studies regarding the viability of refurbishing the Pickering B nuclear station?

Response

The breakdown of the costs associated with OPG's environmental, safety and economic studies regarding the viability of refurbishing the Pickering B Generating Station as of December 2009 are:

- Environmental studies $14.2M
- Safety studies $16.1M
- Economic feasibility studies $18.8M

The above includes costs from direct work, as well as allocated costs from the Nuclear Refurbishment project management team.

GEC Interrogatory #024

Ref: Ex. D2-T2-S1

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

Interrogatory

Did OPG achieve its original schedule for gaining the regulatory approval for the Pickering B Integrated Safety Review and environmental review – please provide details?

Response

OPG did not achieve its original schedule for gaining regulatory approval for the Pickering B Generating Station Integrated Safety Review ("ISR") and Environmental Review.

Integrated Safety Review
As noted in Ex. L-07-021, OPG submitted the Final ISR Report to the Canadian Nuclear Safety Commission ("CNSC") on September 25, 2009. The Final ISR Report was submitted close to two years later than originally planned due mainly to evolving regulatory requirements and significant levels of review required between OPG and the CNSC for each of the Safety Factor Reports that ultimately form the basis for the Final ISR Report. On November 19, 2009, the OPG Board of Directors decided not to refurbish the PNGS, a decision concurred by the Minister of Energy in a February 4, 2010 memo (Ref: Ex. D2-T2-S1, Attachment 3). This decision was formally communicated to the CNSC on March 31, 2010. Subsequently, OPG requested CNSC's closure of the ISR study.

Environmental Assessment
As noted in Ex. L-07-022, OPG submitted its final Pickering B Generating Station Environmental Assessment ("EA") Screening report on December 17, 2007. This submission date was in line with OPG's original plans. The CNSC accepted the EA Screening Report on January 26, 2009, approximately three months later than originally planned due mainly to the longer than expected review period and a delay in scheduling the one-day public hearing to December 10, 2008.

GEC Interrogatory #025

Ref: Ex. D2-T2-S1

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

Interrogatory

Regarding the statement: "Time needed to design, procure and commission the required retube tooling and mockup, as well as ordering and supply of all long lead retube components. Current estimates suggest this time to be between 2.5 and 4 years prior to outage start", please provide an estimate of lead time for contracting and purchasing essential components such as pressure tubes and feeder pipes before a refurbishment outage can take place?

Response

Please refer to Ex. L-2-017, part c).

GEC Interrogatory #029

Ref: Ex. D2-T2-S1

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

Interrogatory

At what LUEC estimate would OPG consider the Darlington refurbishment uneconomical?

Response

OPG would consider the Darlington refurbishment “uneconomical” where the Levelized Unit Energy Cost (“LUEC”) consistently exceeds the LUEC for other baseload options with similar load meeting characteristics for a full range of input variables.

GEC Interrogatory #031

Ref: Ex. D2-T2-S1

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

Interrogatory

Regarding the statement on page 8 of Attachment 4 to D2-2-1: "An economic feasibility assessment of the refurbishment of Darlington has indicated that this is one of the most economic generation options available to OPG to maintain a significant footprint in the Ontario Electricity Marketplace", has OPG assessed whether other non-OPG generation options could pose less of an economic risk and/or cost to the Ontario rate-payer?

Response

No, OPG has not assessed other non-OPG generation options.

GEC Interrogatory #032

Ref: Ex. D2-T2-S1

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

Interrogatory

Has the specific Darlington reactor design ever undergone refurbishment previously?

Response

No, the specific Darlington reactor design has never undergone refurbishment.

GEC Interrogatory #033

Ref: Ex. D2-T2-S1

Issue Number: 6.9
Issue: 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?

Interrogatory

The federal government has tabled legislation, the Nuclear Liability and Compensation Act, which would raise the limit on OPG's required minimum insurance from $75 million to $650 million. If passed, this legislation would increase the insurance fees for Darlington as well as for Pickering A and B.

a) Please provide the annual insurance fees paid under the current Nuclear Liability Act for the Pickering A and B as well as Darlington.

b) Has OPG considered the impact of an increased minimum accident insurance requirement in its operational costs in this rate application? If so, please provide OPG's estimates of how much its nuclear accident insurance fees will increase if the Nuclear Liability and Compensation Act is passed for each of its nuclear facilities.

c) Has OPG been required to pay increase fees to insure the Pickering A, B and Darlington nuclear stations since the terrorist attacks September 11th. If so, please provide a breakdown of fees for each station with rational.

Response

a) The annual insurance fees paid under the current Nuclear Liability Act for Pickering A, Pickering B and Darlington Generating Stations are as follows, based on 2007 - 2009 actuals ($M):

Station	**$M**
Pickering A	0.4
Pickering B	0.7
Darlington	0.8
Total	**1.9**

b) Yes, OPG has considered the impact of an increased minimum accident insurance requirement in its operational costs in this Application. This is discussed in Ex. L-01-089. The table below provides the estimated increase in nuclear accident insurance fees by station during the test period. The station allocation is estimated using the same percentages as for the actual paid fees by station, shown in part a) above.

($M)	2010 Premium	Increase From 2010 to 2011	2011 Premium	Increase From 2011 to 2012	2012 Premium
Pickering A	0.4	0.5	0.9	0.4	1.3
Pickering B	0.7	1.0	1.7	0.6	2.3
Darlington	0.8	1.1	1.9	0.8	2.7
Total	**1.9**	**2.6**	**4.5**	**1.8**	**6.3**
Minimum Insurance	**75**	**175**	**250**	**100**	**350**

c) There was an initial impact to OPG with respect to increased fees to insure the Pickering A, Pickering B and Darlington Generating Stations are due to the terrorist attacks on September 11. This increase, however, has dissipated over time so that the effects are very marginal, if any, during the test period.

GEC Interrogatory #034

Ref: Ex. D2-T2-S1

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

Interrogatory

In regard to this statement on post-refurbishment operations costs on page 17: "A range of $450M to $525M per year (2009 dollars) of post-refurbishment costs, including operations, outages and projects were considered in the feasibility assessment", did OPG consider the impact of increases in nuclear accident insurance in its annual operational cost estimates? If so, please provide a break down and rationale.

Response

Yes. Ex. L-1-089 discusses increases in nuclear accident insurance premiums due to a projected increase in the statutory liability cap to $650M. These increases were included in Darlington's annual post-refurbishment operational cost estimates. The Economic Feasibility Assessment assumed an increase in these premiums from the current levels of $0.8M per year to $2.7M per year in 2013, which was the projected increase at the time of the analysis.

GEC Interrogatory #035

Ref: Ex.D2-T2-S1

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

Interrogatory

The minutes of the April 1st information session regarding its rate application state "OPG was unable to confirm whether the Province had to finally approve the Darlington project for completion, although Barrett indicated that they will certainly be well informed about the project. OPG will try to determine the governance requirements around the project in reply to this question." Will OPG contract for services or components before a final approval for the Darlington refurbishment is given by its board of directors and the Ontario government?

Response

On May 25, 2010, OPG provided the following response to the question from the April 1, 2010 information session and posted the response on its website at the url http://www.opg.com/about/reg/stakeholdering/infosessions/:

> Does OPG have any governance requirements that would entail seeking approval from the shareholder before the full release for the Darlington refurbishment project could go ahead?
>
> There is no requirement to get approval of the shareholder. OPG seeks shareholder concurrence of its business plans, and the Darlington refurbishment project is included in the 2010-2014 business plan. On February 4, 2010, the Province provided its concurrence with the decision of OPG's Board of Directors to proceed with the Darlington refurbishment project.

OPG has released funding for the Project Definition phase of the Nuclear Refurbishment project, which consists of two sub-phases: Preliminary Planning and Engineering and Detailed Planning (Ex. D2-T2-S1, Attachment 2, pages 21 and 22).

OPG anticipates entering into some limited number of contracts during the Preliminary Planning phase to meet the deliverables for that phase, i.e., contracts to design and construct the Training and Mock-up Building. OPG may also enter into contracts with key vendors for major component work programs such as Retube and Feeder Replacement, Fuel Handling, Turbines and Generators.

It is anticipated that during the Engineering and Detailed Planning phase, certain contracts will be partially or fully released in recognition of the long lead time required for certain aspects of the work.

GEC Interrogatory #036

Ref: Ex. D2-T2-S1

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

Interrogatory

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

Response

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

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

GEC Interrogatory #037

Ref: Ex. D2-T2-S1

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

Interrogatory

Has OPG estimated the operational and maintenance costs of operating the Darlington reactors until their nominal end-of-life date between 2018 and 2020 instead of refurbishing the station in the 2015 to 2016 period.

Response

Yes. As part of the Economic Feasibility Assessment (Ex. D2-T2-S1, Attachment 4), the option of not refurbishing Darlington includes an assessment of the operational and maintenance costs required to achieve the nominal end-of-life dates indicated above.

GEC Interrogatory #038

Ref: Ex. D2-T2-S1

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

Interrogatory

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

Response

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

GEC Interrogatory #039

Ref: Ex. D2-T2-S1

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

Interrogatory

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

Response

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

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

GEC Interrogatory #042

Ref: Ex. D2-T2-S1

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

Interrogatory

Figure 5 of Attachment 4 to Exhibit D2-2-1 includes CO2 costs in the estimated LUEC costs for Combined Cycle Gas Turbines (CCGT) in comparison with the Darlington LUEC estimates. Please provide the rationale for include CO2 costs and what assumptions were used in estimating these costs.

Response

CO_2 costs were included in the estimated costs for electricity output from Combined Cycle Gas Turbines ("CCGT"), for comparison with the costs of electricity output from Darlington Generating Station, based on OPG's expectation that there will either be a binding cap and trade regime or that a carbon tax will be implemented in the future, i.e., in the post-refurbishment timeframe.

The following CO_2 costs assumptions were used in developing the Levelized Unit Energy Cost ("LUEC") estimates for CCGT. These values were applied from 2020 onwards.

	Low	**Medium**	**High**
CO_2 Cost (2009 C$/Mg of CO_2)	15	30	50
CO_2 Emissions (Teragrams/TWh)	0.42		

GEC Interrogatory #043

Ref: Ex. D2-T2-S1

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

Interrogatory

At hearings of the federal government's Natural Resources Committee in 2009 on the proposed Nuclear Liability and Compensation Act, the president of GE Hitachi's Canadian division Peter Mason, stated that his company's nuclear division is severed from the international parent in order because of concern that it could be sued in case of an accident at a Canadian facility. For this reason, the company will not sell any equipment built or designed by the U.S. parent to be used in Canadian reactors under the current Nuclear Liability Act. Does OPG cost estimates for the proposed Darlington refurbishment project assume that it will have open access to services and components from US companies? Or, does it assume that contracting for components and servicing for the Darlington refurbishment will be restricted to Canadian based companies because of the limited liability protection provided to them under Canadian law?

Response

There is no plan to restrict work on the Darlington Refurbishment project to Canadian-based companies.

Qualified companies will be invited to participate in competitive bid processes for work during execution of the Darlington NGS Refurbishment Program. Whether or not a company elects to participate in the Darlington Refurbishment Program will be a business decision determined solely at the discretion of each company.