

Board Staff Interrogatory #017

Ref: Ex. C3-T1-S1

Issue Number: 3.3

Issue: Should the same capital structure and cost of capital be used for both OPG's regulated hydroelectric and nuclear businesses? If not, what capital structure and/or cost of capital parameters are appropriate for each business?

Interrogatory

In the reference, OPG provides the report, "Technology-Specific Capital Structures: An Assessment", by Ms. Kathleen McShane of Foster Associates. The report conducts analyses to assess different business risk and appropriate costs of capital related to the regulated hydroelectric and nuclear generation assets of OPG. In this report, the analyses are based on data of publicly traded U.S. and Canadian utilities. For several analyses, Ms. McShane identifies that there are insufficient utilities in the sample with concentrations of hydroelectric or nuclear generation similar to that of OPG to derive sufficiently accurate or meaningful estimates of technology-specific returns or capital structures.

- a) Please explain whether a review of utilities from other jurisdictions, such as the United Kingdom, Australia or Norway, might provide examples of generating utilities with concentrations in nuclear or hydroelectric generation similar to that of OPG and that could provide information on relative risk and hence a return differential from utilities with a more diversified generation portfolio.
- b) Was an investigation of utilities from outside of Canada and the United States considered? Please explain your response.

Response

- a) It is possible, but generation in most European Union countries, including Norway and Sweden, and the United Kingdom, as well as Australia and New Zealand is unregulated, whereas the relevant OPG generation is regulated. Ms. McShane focused on the United States as an alternative to Canada because there is a significant amount of generation in the United States which is still regulated; the regulatory models in the two countries are similar and the capital markets are similar. Using companies outside of North America would require attempting to distinguish among technology-specific cost of capital differences, capital market differences among countries, and regulatory model differences. Further, the analysis requires that the companies have publicly-traded shares so as to be able to take account of the interaction between capital structure and required rate of return ("ROE"). In Australia, for example, most of the generation is fossil fuel. There is only one large hydroelectric generator (Hydro Tasmania), which is state owned, i.e., not publicly-traded, and no nuclear generation. There is little hydroelectric generation in the United Kingdom and the major nuclear generator (British Energy) was recently (January 2009)

1 acquired by EDF, a French company, which has only had publicly-traded shares since late
2 2005 (15 per cent float; the remainder is owned by the French government which has
3 pledged to retain its 85 per cent share). The largest generator in Norway (Statkraft), while
4 a major hydroelectricity producer, is state-owned, as is Vattenfall, the largest Swedish
5 generator (which is diversified among fossil, nuclear, and hydroelectric). In New Zealand,
6 where over 50 per cent of generation is hydroelectric (no nuclear), only one of the four
7 major generators is publicly-traded – three are state-owned. Not only is there only one
8 publicly-traded generator, the electricity market is in a state of flux. In mid-2009, the
9 government began a review of the electricity industry in New Zealand and, in December
10 2009, introduced legislation to reform and restructure the industry in order to introduce
11 additional competition into the market.
12

- 13 b) It was considered but, given the considerations discussed in response to a), the analysis
14 was undertaken by reference to United States companies.

Energy Probe Interrogatory #006

Ref: Ex. C1-T1-S1

Issue Number: 3.3

Issue: Should the same capital structure and cost of capital be used for both OPG's regulated hydroelectric and nuclear businesses? If not, what capital structure and/or cost of capital parameters are appropriate for each business?

Interrogatory

- a) Recognizing that the Foster Associates report did not recommend separate capital structures for nuclear and hydro, what risks might support different capital structures for those two businesses?
- b) In particular, are those risks the same as the risks to be taken into consideration in estimating the costs of equity for regulated hydro and nuclear?
- c) Please indicate whether, from a financial perspective, weather risk and regulatory risk are properly regarded as business-specific risks of regulated hydro and nuclear respectively or part of market risk for the purpose of estimating the respective costs of equity.
- d) Is there empirical support for the conclusion in the Foster Associates report that:

"Average market value – All other things equal, larger firms have the benefit of diversification of assets and greater financial resources to weather economic downturns. Therefore, the larger the market value of the firm, the lower is the expected beta." (Appendix B, p.3)

Response

- a) As summarized at page 34 of Ex. C3-T1-S1, the key business risk factors that would distinguish the two operations are the higher operating and production risks, operating leverage and financial risk (related to the nuclear liabilities) of the nuclear operations relative to the regulated hydroelectric operations and the risk mitigation effect of the Water Conditions Variance Account on the production risks of the regulated hydroelectric operations.
- b) In principle, as discussed in the response in Ex. L-6-007, differences in business risks such as those referenced in response to a) can be reflected in return on equity ("ROE") and/or capital structure. In EB-2007-0905, the OEB opted to recognize OPG's relatively higher business risks relative to a benchmark utility in capital structure, as it has done for the preponderance of the utilities that it regulates.

- 1
- 2 c) Ms. McShane presumes that the term “market risks” refers to capital market risks. The
- 3 referenced risks are business-specific risks, which can be recognized in capital structure
- 4 and/or the allowed ROE.
- 5
- 6 d) Yes. The studies that are conducted annually by Ibbotson Associates with respect to the
- 7 size premium demonstrate that there is consistently an inverse relationship between
- 8 market value and beta. See, for example, Morningstar, *Ibbotson SBBI, 2010 Classic*
- 9 *Yearbook, Market Results for Stocks, Bonds, Ills, and Inflation 1926-2010*, Chapter 7
- 10 “Firm Size and Return”, pages 86-96.

Energy Probe Interrogatory #007

Ref: Ex. C1-T1-S1, page 1
Ex. C3-T1-S1

Issue Number: 3.3

Issue: Should the same capital structure and cost of capital be used for both OPG's regulated hydroelectric and nuclear businesses? If not, what capital structure and/or cost of capital parameters are appropriate for each business?

Interrogatory

The Foster Associates report notes (p.13) that the Board's ROE formula is for a "benchmark utility" and that differences in business risk between that benchmark and a specific regulated utility are to be reflected in differences in capital structure.

- a) Presuming there is a benchmark utility for generation, does OPG have higher or lower business risk than that utility?
- b) What benchmark capital structure should OPG's proposed capital structure (47% debt, 53% equity) be compared with?
- c) Should all differences in business risk be reflected in capital structure, or only those that investors cannot eliminate through diversification?

Response

- a) There is no benchmark generation utility. While there are vertically integrated electric utilities whose generation is regulated, OPG is unique in that its regulated operations are solely generation. However, it is not necessary that there be a benchmark generation utility, only that there be a benchmark, or average business risk, utility for which the cost of equity can be estimated. To the extent that a specific utility's business risks are higher or lower than average, the difference can be reflected in that utility's capital structure. Relative to the benchmark, or average business risk utility, OPG's business risks are higher.
- b) While the average common equity ratio adopted for regulated companies in Canada is approximately 40 per cent, there is no single benchmark capital structure, because capital structure is frequently used as the means to differentiate utilities based on business risk. When the OEB set the allowed common equity ratio for OPG's regulated operations in EB-2007-0905, for example, it compared that equity ratio with the equity ratios adopted for other regulated companies under its jurisdiction, and concluded that OPG's higher business risk relative to those utilities warranted a 47 per cent common equity ratio.

1 c) As a general proposition, business risks, both diversifiable and non-diversifiable, can be
2 reflected in capital structure, return on equity ("ROE") or a combination of both. There is
3 no single "correct" approach, as long as the overall allowed return (ROE plus capital
4 structure) meets all three requirements of the fair return standard. The benchmark utility
5 ROE is estimated by reference to multiple tests which have different premises. The
6 Capital Asset Pricing Model ("CAPM"), for example, is based on the premise that only
7 non-diversifiable risks are measured in the cost of equity, so theoretically, differences in
8 the diversifiable risks between proxy companies used to apply the CAPM and the
9 benchmark utility would have to be reflected in capital structure. Similarly, theoretically,
10 differences in diversifiable risks between the benchmark utility and a specific regulated
11 company would be reflected in the capital structure. The discounted cash flow ("DCF")
12 approach applied to a sample or samples of proxy companies would capture both the
13 diversifiable and non-diversifiable risks applicable to those companies in the estimated
14 cost of equity. In principle, then, when a DCF-based ROE is used to establish a
15 benchmark ROE, differences in the level of total business risks (both diversifiable and
16 non-diversifiable) between the proxy companies and a benchmark utility would be
17 reflected in capital structure, as would the difference in the level of total business risks
18 between a benchmark utility and a specific regulated company. Under the OEB's
19 approach, where the benchmark utility ROE is estimated using multiple tests, in principle,
20 differences in both diversifiable and non-diversifiable risks are reflected in capital
21 structure.

Energy Probe Interrogatory #025

Ref: Ex.E1-T1-S1, page 5 of 7

Issue Number: 3.3

Issue: Should the same capital structure and cost of capital be used for both OPG's regulated hydroelectric and nuclear businesses? If not, what capital structure and/or cost of capital parameters are appropriate for each business?

Interrogatory

The Prefiled Evidence indicates that surplus baseload generation ("SBG") increased in 2009 due to reduced electricity demand resulting from depressed economic conditions and relatively moderate temperatures as well as an increase in electricity supply. As a result, production at Niagara was reduced.

Does this indicate that, from a financial perspective, OPG's regulated hydro business is more exposed to market risk than nuclear which, as the Prefiled Evidence indicates, serves baseload generation and is not intended to vary with market demand (Exh. E2/T1/S1/p.2 of 13)?

Response

Note that both the hydroelectric and nuclear prescribed assets are baseload generation. If the term "market risk" is intended to refer to dispatch risk, then yes, the regulated hydroelectric generation is exposed to higher dispatch risk than the nuclear operations.

Regulated hydroelectric operations are more likely to be curtailed in circumstances of low demand than OPG nuclear generation, as experience in the market in 2009 indicates that Bruce Power's nuclear units are taking outages or maneuvering to address the vast majority of SBG that cannot be exported. OPG generally assumes for forecast purposes in the test period that hydroelectric spill will occur at the prescribed facilities, specifically the Sir Adam Beck generating station, prior to spilling from non-regulated generating stations. The Sir Adam Beck Generating Stations have significant spill capability and are the preferred location for spill for safety reasons. In any given year however, local conditions related to the amount and timing of precipitation and run off can require that a large proportion of the spill occur at plants other than Sir Adam Beck generating station as was the case in 2009 described in Ex. L-01-035. Thus the operation of the regulated hydroelectric facilities would generally be more exposed to the risk of curtailment than the nuclear facilities in the case of reduced demand during depressed economic conditions.

If the term "market risk" is intended to refer to capital market risk, then yes, regulated hydroelectric generation is more exposed to market (systematic) risk than nuclear generation on this specific element of market risk. The regulated hydroelectric facilities would generally

- 1 be more exposed to the risk of curtailment in the case of reduced demand during depressed
- 2 economic conditions and economic conditions reflect a systematic market risk. Please see
- 3 the response in Ex. L-6-026 for a more detailed discussion of the market risks related to
- 4 nuclear and hydroelectric generation.

Energy Probe Interrogatory #026

Ref:

Issue Number: 3.3

Issue: Should the same capital structure and cost of capital be used for both OPG's regulated hydroelectric and nuclear businesses? If not, what capital structure and/or cost of capital parameters are appropriate for each business?

Interrogatory

The Foster Associates report states:

Nuclear capacity – A priori, it is expected that a higher proportion of nuclear capacity would be associated with relatively higher business risk and a higher beta. (Appendix B, p.3)

- a) If beta is a measure of non-diversifiable exposure to market risk, would it not be reasonable, a priori, that the beta of nuclear would be lower than the beta of hydro?
- b) If so, what does this imply about differences in the costs of equity for nuclear and hydro?

Response

- a) The citation in the question was not a comparison of the beta of nuclear to the beta of hydroelectric. The a priori expectation referenced in the context of an instrumental variables analysis was that electric utilities with a higher proportion of nuclear capacity would have a higher beta than utilities with less or no nuclear capacity. There were an insufficient number of electric utilities with a significant proportion of total assets or total generating capacity to include hydroelectric generation ownership as a separate independent variable in the analysis. Ms. McShane would not expect the beta for nuclear generation to be lower than the beta of hydroelectric generation. Factors that would point to a higher beta for nuclear generation than for hydroelectric generation include: (1) the findings in other instrumental variables analyses that earnings variability was a significant explanatory of market betas (Ex. C3-T1-S1, see pages 43 and 44 of Ms. McShane's report); (2) the higher operating leverage of nuclear generation, which results in greater sensitivity of the earnings to unanticipated changes in costs and revenues; (3) the higher risks of unanticipated costs of repair for nuclear operations, which would result in higher sensitivity to changes in inflation; (4) the uncertainty of costs of nuclear construction, which would result in higher sensitivity to inflation and interest rates; (5) higher decommissioning costs of nuclear generation, which are sensitive to inflation; and (6) the sensitivity of the returns on decommissioning trusts to market returns.
- b) Not applicable.

Pollution Probe Interrogatory #015

Ref: Ex. C1-T1-S1, page 1 of 6, line 22
Ex. C1-T1-S2, Table 6a

Issue Number: 3.3

Issue: Should the same capital structure and cost of capital be used for both OPG's regulated hydroelectric and nuclear businesses? If not, what capital structure and/or cost of capital parameters are appropriate for each business?

Interrogatory

OPG states that it has "applied the ROE of 9.85 per cent set by the OEB for use in 2010 cost of service applications in the OEB's letter of February 24, 2010."

- a) Given that the credit and financial markets have returned to longer run normality, would OPG please explain why the ROE of 9.85 per cent set by the OEB for use in 2010 cost of service applications in the OEB's letter of February 24, 2010 is applicable for 2011 and 2012?
- b) Given that the credit and financial markets have returned to longer run normality, would OPG please explain why the equity risk premium implicit in the allowed 9.85 percent that ranges between 5.47% and 5.91% based on the expected yield on 30-year GOC for 2011 given in Exhibit C1, Tab 1, Schedule 2, Table 6a, note 12 is not too high.
- c) Would OPG explain why the GOC Q1-11 yield is 3.94% for issue 24 and for Niagara 15 and is 4.19% for issue 25 in Exhibit C1, Tab 1, Schedule 2, Table 6a, note 12?

Response

- a) The question mischaracterizes OPG's proposal. OPG's evidence is clear that the ROE for 2011 and 2012 should be updated using data for the month that is three months prior to the effective date of the new payment amounts as required by the OEB's Cost of Capital Report (Ex. C1-T1-S1, page 3).

The Return On Equity ("ROE") adjustment formula in the Cost of Capital Report provides for an ROE for a single year, which in OPG's circumstances would be 2011. The independent forecast data source used in the OEB's adjustment formula for the 2011 ROE calculation is the Consensus Economics report. However, the Consensus Economics report does not contain the required data for calculating a 2012 ROE using the OEB's cost of capital formula. As a result, OPG proposes that data from another independent source, Global Insight, be used for 2012. Accordingly, there would be a different ROE calculated for each of 2011 and 2012 based on data taken from the

1 Consensus Economics report (for 2011) and the Global Insight report (for 2012) and
2 using data that is three months prior to the effective date of the new payment amounts.

3
4 The OEB's ROE adjustment formula has three terms, two of which reflect historic
5 information (observed trading spreads between the 10 and 30 year Canada bond and the
6 Bloomberg data used to determine Canadian utility corporate spreads). Forecast data is
7 used for the 10-year long Canada bonds; however the source of that information
8 (Consensus Economics) only provides three-month and 12-month forward data. Global
9 Insight, the source of OPG's forecast long-term debt cost for 2011 and 2012, provides
10 both one-year and two-year forward data.

- 11
12 b) OPG is proposing to use the OEB's approved formula. The Board's Cost of Capital report
13 established a 550 basis point equity risk premium.

14
15 OPG notes that the premium of 5.47 per cent to 5.91 per cent calculated by Pollution
16 Probe is not related to 30-year GOC bonds as stated in the question. The bond rates in
17 Ex. C1-T1-S2 Table 6a are 10-year GOC bonds, not 30-year bonds as stated in the
18 question.

- 19
20 c) The description in the evidence for Issue 25 is incorrect. It should read GOC Q3-11 not
21 GOC Q1-11. Ex. C1-T1-S2, Table 6a, Note 4 shows that Issue 25 is planned for
22 September 22, 2011 and therefore the Q3 rate of 4.19 per cent should apply.

Pollution Probe Interrogatory #016

Ref: Ex. C1-T1-S1, page 1 of 6, line 22

Issue Number: 3.3

Issue: Should the same capital structure and cost of capital be used for both OPG's regulated hydroelectric and nuclear businesses? If not, what capital structure and/or cost of capital parameters are appropriate for each business?

Interrogatory

OPG states that it "continues to support the use of a single cost of capital for its prescribed facilities".

- a) When evaluating the desirability of capital expenditures, does OPG use net present value ("NPV") or internal rate of return ("IRR")?
- b) If OPG uses NPV to evaluate capital expenditures:
 - i. What does OPG use as the discount rate and how is it determined?
 - ii. Does the discount rate differ for capital investments that differ in their risks?
 - iii. If the discount rate differs for capital investments with perceived risk differences, how does it differ and how are the different discount rates calculated?
 - iv. Does the discount rate differ for capital investments for hydroelectric versus nuclear operations (i.e., so-called divisional "cost of capital")?
 - v. If the discount rate so differs, how does the discount rate differ and how are the different discount rates calculated?
 - vi. Does the discount rate differ for capital investments for regulated versus non-regulated hydroelectric or nuclear operations?
 - vii. If the discount rate differs for capital investments for regulated versus non-regulated hydroelectric or nuclear operations, how does the discount rate differ and how are the different discount rates calculated?
- c) If OPG uses IRR to evaluate capital expenditures:
 - i. What does OPG use as the hurdle or cut-off rate of return for making (or are considered in making) accept/reject investment decisions?
 - ii. How is this hurdle rate determined?
 - iii. Does the hurdle rate differ for capital investments that differ in their risks?
 - iv. If the hurdle rate differs for capital investments with perceived risk differences, how does the hurdle rate differ and how is it calculated?
 - v. Does the hurdle rate differ for capital investments for hydroelectric versus nuclear operations (i.e. so-called divisional "cost of capital")?
 - vi. If the hurdle rate differs for capital investments for hydroelectric versus nuclear operations, how does the hurdle rate differ and how is it calculated?

- 1 vii. Does the hurdle rate differ for capital investments for regulated versus non-regulated
2 hydroelectric or nuclear operations?
3 viii. If the hurdle rate differs for capital investments for regulated versus non-regulated
4 hydroelectric or nuclear operations, how does the hurdle rate differ and how is it
5 calculated?
6
7

8 **Response**
9

- 10 a) Yes, OPG uses NPV in evaluating capital expenditures.
11
12 b) i. OPG uses a seven per cent discount rate to evaluate capital expenditures related to
13 Prescribed Assets. Please see the response to interrogatory L-6-002 on how this
14 discount rate is determined.
15 ii. OPG uses the same discount rate in its financial analysis for all investments with
16 respect to Prescribed Assets. Risks are taken into account in the cash flows. This is
17 consistent with the approach described to the OEB in EB-2007-0905.
18 iii. Not applicable.
19 iv. The discount rate does not differ.
20 v. Not applicable.
21 vi. OPG declines to answer this question as it relates to its unregulated operations.
22 vii. Refer to vi) above.
23
24 c) Not applicable.

Pollution Probe Interrogatory #017

Ref: Ex. C1-T1-S1, page 1 of 6, lines 2-26

Issue Number: 3.3

Issue: Should the same capital structure and cost of capital be used for both OPG's regulated hydroelectric and nuclear businesses? If not, what capital structure and/or cost of capital parameters are appropriate for each business?

Interrogatory

As summarized in this passage, the Board in EB-2007-0905 determined that the cost of capital for OPG's regulated operations "shall reflect the adoption of the formula approach to setting the ROE (page 162), consistent with the OEB's expectation that risk differences in the regulated businesses are appropriately addressed through the capital structure rather than the ROE (page 162)", and that "there *may* be merit in establishing separate capital structures for the two businesses as it would enhance transparency and more accurately match costs with the payment amounts". As a result, OPG engaged Fosters whose analysis considered five different potential quantitative methodologies for isolating the cost of capital for OPG's regulated hydroelectric and nuclear generation operations.

- a) If the Board's expectation is that risk differences in the regulated businesses are appropriately addressed through the capital structure rather than the ROE, why was Foster Associates, Inc. asked to evaluate potential methodologies for isolating the cost of capital and not capital structures for OPG's regulated hydroelectric and nuclear generation operations?
- b) If the Board did not use a quantitative methodology for determining OPG's overall equity thickness, why does OPG consider it appropriate to evaluate different potential quantitative methodologies for isolating the cost of capital for OPG's regulated hydroelectric and nuclear generation operations?

Response

- a) OPG considers the cost of capital to reflect both return on equity ("ROE") and the equity component of the capital structure. OPG's request for proposal ("RFP") provided in response to Ex. L-04-011 (Attachment 1, page 13) requests that the selected cost of capital expert "assess whether a technology specific cost of capital should be developed using the same ROE and different capital structures to reflect technology specific risk" and that the expert "assess implications of assigning a specific capital structure to one technology on the implied capital structure of the other if total common equity ratio is 47 per cent for the combination of both technologies."

1 These requirements are responsive to the OEB's finding in the EB-2007-0905 Decision
2 With Reasons (page 161) which states "the Board finds that there may be merit in
3 establishing separate capital structures for the two businesses" and the OEB's conclusion
4 in the Decision (page 162) that states "the Board concludes that this is an approach
5 worthy of further investigation which will be explored in OPG's next proceeding. In
6 examining whether to set separate costs of capital, the Board intends only to examine
7 whether separate capital structures should be set for the regulated hydroelectric and
8 nuclear businesses."

9
10 The finding required OPG to consider establishing separate capital structures. OPG's
11 RFP instructions are consistent with the EB-2007-0905 Decision.

- 12
13 b) In its Decision in EB-2007-0905, despite the fact that there was expert evidence
14 presented with respect to technology-specific capital structures, the OEB concluded that
15 the evidence was not sufficiently robust to set separate parameters. OPG concluded that
16 the evaluation of different quantitative methodologies would be a reasonable means of
17 determining whether more robust evidence on technology-specific capital structures
18 could be adduced.

Pollution Probe Interrogatory #020

Ref: Ex. C3-T1-S1, page 9, point O

Issue Number: 3.3

Issue: Should the same capital structure and cost of capital be used for both OPG's regulated hydroelectric and nuclear businesses? If not, what capital structure and/or cost of capital parameters are appropriate for each business?

Interrogatory

- a) If the Board did not use a quantitative methodology for determining OPG's overall equity thickness, why does Ms. McShane consider it inappropriate to similarly use a degree of judgment to determine indicative equity thicknesses for OPG's regulated hydroelectric and nuclear generation operations?
- b) Please have Ms. McShane explain why judgment can be used to conclude that OPG's regulated "nuclear generations face materially higher business risks than the hydroelectric operations" and to then use this conclusion in determining the OPG's overall capital structure, but that judgment is not appropriate for determining indicative and separate capital structures for OPG's regulated hydroelectric and nuclear generation operations.

Response

- a) Ms. McShane recognizes that, in any cost of capital assessment, judgment is required. However, judgment needs to be restrained by quantitative analysis. There was evidence presented to the OEB in EB-2007-0905 regarding technology-specific capital structures. However, in its Decision, the OEB concluded that the evidence was not sufficiently robust to set separate parameters. The objective of Ms. McShane's analysis was to identify an approach or approaches that would address the OEB's finding. However, as stated at page 9 of Ms. McShane's report, "...given the constraints of the available market data and the lack of proxy companies that are comparable to each of the two technologies, none of the analyses conducted were able to provide any quantitative insight into reasonable differential capital structures for the two operations. Any specification of technology-specific capital structures would be **largely** a judgmental exercise and lack any degree of precision. Given the degree of judgment that would be required and the absence of robust parameters upon which to base that judgment, there is no compelling basis for the Board to adopt technology-specific capital structures." (emphasis added).
- b) Ms. McShane does not accept the premise of the question. While Ms. McShane did conclude in EB-2007-0905 (as in EB-2010-0008) that the nuclear operations face materially higher business risks than the regulated hydroelectric operations, that conclusion was not the basis for her estimation of the capital structure for OPG's

1 regulated operations as a whole. Rather the estimate of the capital structure for OPG's
2 regulated capital structure reflected the conclusion that the composite generation
3 operations face higher business risks than "wires" or "pipes" utilities.
4

5 The conclusion that the nuclear operations are exposed to a higher degree of business
6 risk than the regulated hydroelectric operations is qualitative in nature. It does not provide
7 any quantitative basis for differentiating between capital structures for the nuclear and
8 regulated hydroelectric operations. As stated at page 36 of Ms. McShane's report, "The
9 estimation of the cost of capital for OPG's prescribed assets as a whole is a challenge
10 because there are no stand-alone regulated generators with capital market data which
11 can serve as proxies for the estimation of the cost of capital for OPG's prescribed assets
12 as a whole. The absence of proxy companies operating under a framework similar to
13 OPG's renders the initial point of departure, that is, the estimation of the cost of capital for
14 regulated generation as a whole, subject to significant judgment. The isolation of the cost
15 of capital for regulated generation by technology entails even more judgment." (footnotes
16 omitted).

Pollution Probe Interrogatory #021

Ref: Ex. C3-T1-S1, page 21, section D.1, second paragraph

Issue Number: 3.3

Issue: Should the same capital structure and cost of capital be used for both OPG's regulated hydroelectric and nuclear businesses? If not, what capital structure and/or cost of capital parameters are appropriate for each business?

Interrogatory

The relevant passage for this interrogatory is: "It is important to recognize that the application of a "pure" stand-alone approach for rate setting purposes will result in a higher cost of capital than one which reflects the impacts of diversification."

- a) Please have Ms. McShane explain how this is consistent with the value discount associated with diversified versus focused entities.
- b) Please have Ms. McShane explain why investors would value the diversification when they could do it themselves.
- c) Please have Ms. McShane explain why investors would value the diversification when they lose the flexibility of deciding themselves where and how they want to diversity when the choice of diversification is instead made by the utility.

Response

- a) The referenced sentence from Ms. McShane's report related to diversification across different functions performed by companies operating in regulated businesses, not to the broader context of corporate diversification across industries. In the broader context of corporate diversification, a review of the academic literature indicates that the value discount that has been associated with diversified entities may be the result of factors such as (1) the diversifying entities and their acquisition targets trading at a discount before diversification (e.g., underperformance leads to diversification rather than diversification causing underperformance); (2) cross-subsidization or sub-optimal resource allocation among business units; and (3) the degree of diversification and diversification into unrelated businesses, resulting in inefficiencies in operations. A 2004 study, Belén Villalonga, "Diversification Discount or Premium? New Information from the Business Information Tracking Series", *Journal of Finance*, Vol. LIX, No. 2, April 2004, pages 479-506, found a diversification premium when business segments were more consistently and objectively defined. A recent paper, Rebecca Hann, Maria Ogneva, Oguzhan Ozbas, Corporate Diversification and the Cost of Capital, September 18, 2009, Rock Center for Corporate Governance at Stanford University Working Paper No. 58; Marshall School of Business Working Paper No. FBE 32-09, shows that "diversified firms have a lower cost of capital than portfolios of comparable stand-alone firms and that the

1 reduction is strongly related to the correlation of business unit cash flows, consistent with
2 a coinsurance effect.”

3
4 b) In the specific context of Canadian utilities, Dominion Bond Rating Service specifically
5 refers to the diversified portfolio of assets of a number of the companies it rates as a
6 “Strength” (e.g., CU Inc., Enbridge Inc., TransCanada PipeLines and Fortis Inc.).
7 Similarly, Standard & Poor’s references the diversified nature of the businesses or asset
8 portfolios of Canadian Utilities Ltd., Enbridge Inc., TransCanada PipeLines and Fortis Inc.
9 as strengths.

10
11 c) Reasons investors would value diversification across different regulated functions or
12 across related businesses include the ability of the diversified company to take
13 advantage of economies of scale and scope (joint operations), enhanced ability to
14 coordinate operations across industry segments, the ability in the case of generation
15 capability to offset the unavailability of one source with another source that is available,
16 the ability in some cases to take advantage of natural hedges (e.g., high market prices for
17 generation act as an offset to fixed retail prices at the consumer level), the ability to apply
18 management expertise in other geographic markets, the creation of value through the
19 ability to bundle service packages, the potential ability to generate tax savings, and
20 increased flexibility to raise and deploy capital resources.

21
22 d) The companies themselves would have superior capabilities to exploit the benefits of
23 diversification across related lines of business and functions than secondary market
24 investors (i.e., investors in the securities).

Pollution Probe Interrogatory #033

Ref: Ex. C3-T1-S1, page 27, first full paragraph

Issue Number: 3.3

Issue: Should the same capital structure and cost of capital be used for both OPG's regulated hydroelectric and nuclear businesses? If not, what capital structure and/or cost of capital parameters are appropriate for each business?

Interrogatory

Ms. McShane states here that: 'The Board declined to approve OPG's proposed payment structure, instead adopting a 100% energy-based regulated payment. The Board concluded that OPG should be fully incented to produce as accurate a forecast of nuclear production as possible and should be at risk if actual output falls short of forecast. The adoption of a 100% energy-based regulated payment in lieu of a payment that partially recovers the revenue requirement in a fixed charge results in higher revenue risk to the regulated nuclear operations than anticipated in the 2007 business risk assessment and increases the business risk of OPG's nuclear operations relative to that of the hydroelectric operations.'

- a) Please provide the details of all deferral accounts that relate to forecasting risk.
- b) Please explain the role of such deferral accounts in mitigating forecasting risk.

Response

- a) OPG has the following variance and deferral accounts that relate to forecasting risk:

- Nuclear Liability Deferral Account
- Nuclear Development Variance Account
- Hydroelectric Water Conditions Variance Account
- Ancillary Services Variance Account
- Capacity Refurbishment Variance Account
- Nuclear Fuel Expense Variance Account
- Income and Other Taxes Variance Account
- Bruce Lease Net Revenues Variance Account

The specifics of these accounts are described in the OEB's Decision in EB-2007-0905, Chapter 7 and in Exhibit H of OPG's filing in EB-2010-0008. All of these accounts, except the Bruce Lease Net Revenues Variance Account, were proposed by OPG in EB-2007-0905. The Bruce Lease Net Revenues Variance Account was ordered by the OEB as a result of its decision to treat the Bruce lease differently from what had been proposed by OPG. In EB-2007-0905, OPG had also proposed a pension/OPEB variance account, which the OEB declined to approve. OPG has requested one new variance account in this

1 proceeding, an IESO Non-energy Charges Variance Account, described in Ex. H-T3-S1,
2 for an expense which is beyond management's control, is difficult to forecast and has
3 exhibited significant variability.
4

- 5 b) The use of deferral and variance accounts mitigates forecasting risks related to costs
6 over which the utility has little or no control, or are difficult to forecast. The extent to which
7 deferral accounts lower the forecasting risk is a function of the scope of the accounts and
8 the materiality of the costs that are covered by those accounts. The existence of such
9 accounts does not, however, guarantee recovery of the costs nor does it change the
10 utility's fundamental risks.