

Ontario Energy Board

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.

**ENERGY PROBE RESEARCH FOUNDATION
("ENERGY PROBE")
INTERROGATORIES OF
POLLUTION PROBE**

September 7, 2010

**ONTARIO POWER GENERATION INC.
DETERMINING PAYMENT AMOUNTS
EB-2010-0008**

**ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES
OF
POLLUTION PROBE**

Issue 3.3:

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 # 1

Ref: Exhibit: Pollution Probe's Evidence, Page 33

Viewing regulated hydro and nuclear as separate divisions, please indicate whether, in the context of CAPM, nuclear-specific regulatory changes would be considered a systematic or non-systematic risk?

Interrogatory # 2

Ref: Exhibit: Pollution Probe's Evidence, Page 33

Does the greater operating leverage in nuclear mean that, ceteris paribus, it is more exposed to systematic risk factors than hydro?

Interrogatory # 3

Ref: Exhibit: Pollution Probe's Evidence, Page 33

If unplanned outages occur in nuclear by reason of equipment failure, would that risk be diversifiable in the context of CAPM?

Interrogatory # 4

Ref: Exhibit: Pollution Probe's Evidence, Page 33

Does the fact that regulated hydro, but not nuclear, is dispatchable in relation to unexpected changes in demand for electricity mean that, ceteris paribus, hydro is more exposed to systematic risk factors than nuclear?

Interrogatory # 5

Ref: Exhibit: Pollution Probe's Evidence, Page 33

If, as suggested on p.65, nuclear is riskier than hydro due to operational and regulatory risk, what are the implications for the respective costs of equity in the CAPM framework?

Interrogatory # 6

Ref: Exhibit: Pollution Probe's Evidence, Page 33

Is there any evidence in the literature that supports a particular beta for nuclear and, if not, would it be more reasonable to conclude that the beta is greater or less than one?

Interrogatory # 7

Ref: Exhibit: Pollution Probe's Evidence, Page 33

Having regard to the fact that shares of companies in cyclically-sensitive economic sectors such as construction have betas that exceed one, would it be more reasonable to conclude that the hydro beta should be close to 1.0 or substantially different from 1.0?

Interrogatory # 8

Ref: Exhibit: Pollution Probe's Evidence, Page 33

Re: p.65, would an estimate of MERP of 550 basis points (including transaction costs) be reasonable? If so, would the reconciliation of the Board's UERP of 550 basis points with CAPM require that the appropriate weighted-average of nuclear and hydro betas be 1.0?

Interrogatory # 9

Ref: Exhibit: Pollution Probe's Evidence, Page 13

You indicate that the market equity risk premium for Canada for the 110-year period ending 2009 is 3.7%. Please provide the source for this estimate.

Interrogatory # 10

Ref: Exhibit: Pollution Probe's Evidence, Page 61

Please confirm the statement on p.61 that the research by Sanyal and Bulan indicates that the increase in business risk that resulted from deregulation in the U.S. was accompanied by a decrease in the equity ratio. Did they not conclude the opposite, that increased risk under deregulation led to reduced leverage?

Interrogatory # 11

Ref: Exhibit: Pollution Probe's Evidence, Page 61

Please discuss briefly the implications of the Sanyal/Bulan research for the current application. Should OPG's unregulated businesses have the same capital structure as the regulated businesses? Since the regulator will establish a "deemed" capital structure for the regulated businesses but not require actual separation of the regulated and non-regulated businesses for operational and financing purposes, what problems may arise from a financial point of view?

Interrogatory # 12

Ref: Exhibit: Pollution Probe's Evidence, Page 64

At p.64, it is stated that a 40% equity ratio is in the middle of the "generous range" of capital structures. Is Schedule 5.6 at p.91 the source of the supporting information?

Interrogatory # 13

Ref: Exhibit: Pollution Probe's Evidence, Page 62-63

It is suggested that 40% equity ratio benefits investors at the expense of consumers. From a finance perspective, what other problems may arise if a regulated utility has too much equity?

Interrogatory # 14

Ref: Exhibit: Pollution Probe's Evidence, Page 62-63

Are there sound reasons from a finance perspective for having more debt in the capital structure of a regulated utility other than the ones discussed? What would be the problem with having excessive amounts of debt?

Interrogatory # 15

Ref: Exhibit: Pollution Probe's Evidence, Page 62-63

Are the 40% and 50% equity ratios suggested for regulated hydro and nuclear respectively to be based on the book values of debt and equity as provided in OPG's various exhibits?

Interrogatory # 16

Ref: Exhibit: Pollution Probe's Evidence, Page 62-63

Please comment, from a financial point of view, on the appropriate treatment of OPG's "Long-term debt provision" since it does not refer to actual debt. Does it matter how the provision is allocated to regulated hydro and nuclear if separate deemed capital structures are adopted? Does the provision have equity-like characteristics that increase the creditworthiness of OPG's senior debt?

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?

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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?

Interrogatory # 17

Ref: Exhibit: Pollution Probe's Evidence, Page 10

Please clarify your criticism of the 7% discount rate that OPG applies to both regulated hydro and nuclear. Specifically, please expand briefly on your observations that:

- a) **"It is not obvious from its application how OPG deals with the contemporaneous interrelationships between the input variables and the tendency of simulation to underweight tail observations."**
- b) **"While specifying the S-curve for factor inputs reflects the uncertainty associated with those factor inputs, it does not account for the project risks."**

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?

Interrogatory # 18

Ref: Exhibit: Pollution Probe's Evidence, Page 10

Is it your view that OPG's project evaluation procedures are seriously biased in favour of adopting of high-risk nuclear projects because it does not use separate costs of capital for nuclear and regulated hydro?