

08 July 2008

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

Dear Ms Walli:

**Re: EB-2007-0905 – OPG Prescribed Generation Payments – GEC-Pembina-OSEA Final Argument**

Attached is our final submission in this case.

Sincerely,

A handwritten signature in black ink, appearing to read 'David Poch', with a stylized flourish at the end.

David Poch

**PROVINCE OF ONTARIO  
BEFORE THE ONTARIO ENERGY BOARD**

Application of Ontario Power Generation Inc.  
for Determination of Payment Amounts  
for the Output of Certain of its  
Prescribed Generating Facilities

**Final Submissions on behalf of GEC-PEMBINA-OSEA**

**Introduction:**

The Green Energy Coalition (comprised of David Suzuki Foundation, Eneract, Greenpeace Canada, Sierra Club of Canada, and WWF-Canada), Pembina Institute and the Ontario Sustainable Energy Association, collectively referred to as GEC-Pembina-OSEA have limited their intervention and submissions to two issues: the benefits of using distinct costs of capital to determine the payments for the nuclear and hydraulic divisions and the disbenefit of the proposed 25% fixed component of the nuclear payments.

**A. Distinct Costs of Capital**

**All parties acknowledge that the nuclear division has a higher risk than the hydraulic divisions.**

MS. McSHANE: Both debt-rating agencies have spoken to nuclear as being higher risk than other generation. Tr. V. 10, P. 37, l. 12

Indeed, it is clear that the primary risk of concern here is the production risk:

MS. McSHANE: I think particularly with the nuclear facilities, that they -- the technology and operating risks surrounding those types of plants are such that, while you do your best to try to forecast, that the risks of those plants are inherently higher, considerably higher than other types of plants. V.12 P.9, l.9

**Absent Board direction OPG will misallocate both capital and OM&A expenditures**

In his written and oral evidence Mr. Chernick described how an inappropriate choice of discount rate (or hurdle rate) that does not reflect the risks associated with the particular investment can lead to inefficient choices by reason of misallocation. This is not disputed by

any party. OPG's response appears to be that it 'can choose' to utilize different discount rates or Monte Carlo simulation techniques in its financial analyses of investments. In fact OPG's sworn evidence is that it utilizes a single discount rate and has indicated:

"OPG uses the same discount rate in its financial analysis for *all investments* with respect to the regulated assets." (L-3-2(c)) (emphasis added)

As Dr. Booth succinctly put it:

"Such a practise is contrary to any and all financial principles that I am aware of." (M-3.7-1)

The stand alone principle is justified by OPG's expert, Ms. McShane as vital to ensuring allocative economic efficiency. The same rationale applies to OPG's choices between investment opportunities in its nuclear, hydraulic and unregulated activities. Fortunately, OPG has indicated it will take guidance from the Board in future:

"In future assessments, OPG will consider the approved regulated ROE/capital structure along with OPG's cost of long term borrowings and make a determination of the appropriate discount rate to be applied." (Exhibit L-T3-S2(d))

Mr. Chernick has presented evidence favouring a more complete inclusion of risks in cost of capital determinations conducted separately for each division. Precedent for regulatory allowance of distinct costs of capital for different divisions of a utility are discussed in M.7.0, s1.

Mr. Goulding at M-T1.7-S1 notes:

Mr. Chernick is theoretically correct – if two different sets of assets have different risk profiles, a different cost of capital should be attributed to each. While it is important to avoid fallacies of misplaced precision, and to balance the administrative costs (if any) of maintaining separate ROEs and capital structures for the two asset classes, in general it may be appropriate to have distinct structures and returns for the two assets.

Mr. Chernick also proposes that reliance upon deferral accounts be minimized in degree by inclusion of the risks in the cost of capital and by requiring that the added revenue awarded be preserved to mitigate those risks as they materialize, with the deferral accounts in effect being utilized only for any unfunded costs. (see M-7.0, s2 and M7.1, s3) As discussed below, this proposal may best be dealt with in subsequent proceedings.

### **Benefits of basing payments on distinct costs of capital for each division:**

Before turning to the Board's options for ensuring that OPG properly considers risk in its decisions, it is instructive to consider the different benefits that can flow from distinct costing:

1. Operating decisions can better reflect the high value of nuclear performance
2. Capital investment decisions (both routine and extraordinary) can reflect true costs and risks
3. Electricity prices can be smoothed
4. Regulatory efficiency can be enhanced

Taking these in turn:

1. Operating decisions can better reflect the high value of nuclear performance:

If payments are based on distinct costs of capital OPG will have an incentive to maximize nuclear production. OPG makes innumerable daily decisions about its scheduling and approach to maintenance, the operation of reactors etc.. Many such decisions can impact on the extent and timing of generator output. For optimal results OPA should face the real costs of its actions. At v. 13, page 5 Mr. Chernick notes:

...allocating more of OPG's cost to nuclear and leaving the cost recovery tied to performance, that is not rolling it into a fixed charge, would increase the importance to OPG of maintaining high nuclear performance levels which are very important to power consumers. Both the 25 percent fixed charge and the same return on equity and same capital structure for the two divisions understates the importance of that nuclear production.

2. Capital investment decisions (both routine and extraordinary) can reflect true costs and risks

As Mr. Chernick elaborated, the discount rate utilized in OPG's financial analyses of competing investment choices (even small investments made during the rate period) will affect OPG's choices. Particularly for the nuclear division where asset life is a real risk, if the discount rate is too low, OPG will overinvest in long payback investments.

At page 14 of his report (Ex. M7) Mr. Chernick provided a simple example to illustrate the effect:

The higher the cost of capital, the higher the annual cost of capital investments and the lower the present value of future benefits.

For example, consider a \$12 million investment that is expected to save \$1 million (or add \$1 million in revenues) in the first year, rising with 2.5% inflation for 20 years. Discounting at an 8% hydro cost of capital, the present value of the benefits is \$12.4 million, suggesting that the investment is prudent and should be undertaken. Discounting at an 9.5% nuclear cost of capital, the present value of the benefits is \$11.1 million, suggesting that the investment would not be prudent and should be rejected.

Equivalently, the first-year real-levelized carrying cost of the investment

would be about \$0.9 million with hydro financing and \$1.1 million with nuclear financing, reflecting the higher risk of nuclear investments.

If payments are based on an appropriate cost of capital that reflects real risks, OPG will be hard pressed to ignore the undisputed wisdom in analysing different categories of investment with different discount rates (wisdom they acknowledge but have in practice ignored in the past).

### 3. Electricity prices can be smoothed

To the extent that reliance on deferral accounts can be reduced (by way of higher capital cost and segregated retained earnings covering all or a portion of the risks as they materialize) electricity costs to consumers will be smoothed. This is an explicit government objective that was enunciated when the control of OPG's regulated assets was instituted. (As discussed below, GEC-Pembina-OSEA recognize that this may not be practical to implement at this time.)

### 4. Regulatory efficiency

As the proportion of nuclear versus hydraulic assets changes from year to year, the total cost of capital will automatically adjust.

### **Inadequacy of Monte Carlo simulations to capture risk:**

OPG has suggested that it can capture risk in its financial decisions by way of Monte Carlo simulations. As discussed at tr. V. 13, page 9 *et seq.* these simulations do not avoid the need to identify and quantify individual risks and there is no accepted mechanism to translate the output of such simulations into a practical tool for capturing risk in decision-making.

### **Alternative remedies:**

The Board has several options to encourage OPG to engage in more appropriate economic decision-making practices.

The Board can set one cost of capital and merely direct OPG to utilize project-specific discount rates that reflect the relative riskiness of project decisions, or, the Board can set payments for the two divisions based on risks of the divisions (or it can do both).

The two approaches are not mutually inconsistent. However, OPG will prefer the former. It will be reluctant to have more of its revenues tied to nuclear performance which would result if the Board sets payments for the two divisions based on their separate costs of capital. GEC-Pembina-OSEA submit that the Board should direct OPG to use project-specific discount rates regardless of the Board's determination on the question of the need for distinct costs of capital for the two divisions. However, we note that the approach will not provide OPG with the real pressure of a price signal to consider in all its routine decisions.

Further, as we have seen by its choice to use a single value for all investment analysis, OPG appears reluctant to be rigorous in its consideration of risk when analysing investments. Accordingly, we urge the Board to ensure that OPG recognizes at least the average risk of each division by tying payments to the risk inherent in each division.

**Extent of the risk differential:**

Mr. Stephenson took Ms McShane to the CIBC opinion on the Bruce refurbishment and operation contract (cited in Mr. Chernick's evidence at M7, p. 12). That opinion found that Bruce Nuclear's RoE was acceptable at 18% (a 13.3% cost of capital with a 40% debt ratio). Clearly these values are far higher than the combined values being proposed by OPG's witness or any other witnesses in this proceeding suggesting that there is a very significant spread between the two divisions.

Mr. Rupert asked about the differences between OPG's nuclear division, which is operating running reactors, and Bruce Power, which is both refurbishing and operating reactors. Ms. McShane subsequently clarified that exchange noting that the CIBC opinion was based on a comparison to other nuclear intensive companies that would not likely be undertaking new construction or refurbishment. (V.10, p. 53, l. 19 – p. 54, l. 15.)

Ms. McShane has provided her rough estimates of the spread in both return on equity and equity ratio which would be applicable if separate costs of capital were to be set. Her numbers with and without the 25% fixed charge (all assuming that the deferral accounts are in place) were summarized in Pollution Probe's cross-examination book:

**Scenario #1: Assuming 25% Fixed Charge for Nuclear Assets**

	Equity as % of Rate Base	Return on Equity 2008	Return on Equity 2009
OPG - Hydro	45% - 50%	10.5%	10.5%
OPG - Nuclear	60%	11-11.5%	11-11.5%
OPG - Total	55 to 60% (midpoint 57.5%)	10.5%	10.5%

**Scenario #2: Assuming No Fixed Charge for Nuclear Assets**

	Equity as % of Rate Base	Return on Equity 2008	Return on Equity 2009
OPG - Hydro	45% - 50%	10.5%	10.5%
OPG - Nuclear	60%	11.5% - 12.0%	11.5%-12.0%
OPG - Total	60%	10.5%	10.5%

References: Ex. L, Tab 12, Schedules 1, 2, 3 & 4 and Transcript for June 12, 2008 (Volume 10) at pages 80-84 and 90-92 and specifically at page 81, lines 5-7 and 14-18; page 83, lines 13-18; and page 92, lines 6-11.

GEC\_Pembina-OSEA recognize that Ms. McShane's estimate of the spread is just that – a spread, not two independent bottom up analyses as she was unable to find a large enough database of hydraulic only entities. Further, there has been no complete discussion of the mechanics of Mr. Chernick's proposal to sequester the higher return that would flow to OPG from an 'all risk' approach. Accordingly, we submit that in this proceeding the Board should select an acceptable combined cost of capital (with the deferral accounts it finds acceptable in place) and then adjust the nuclear division equity ratio and RoE upward and make a corresponding balancing downward adjustment to the hydraulic division values in accord with Ms. McShane's estimates. The Board may wish to call upon OPG to provide a more thorough analysis of cost of capital without the extensive deferral accounts in future proceedings.

#### **B. 25% Fixed Payment Proposal**

For the reasons discussed above under the sub-heading: 'Operating decisions will reflect the high value of nuclear performance', GEC-Pembina-OSEA submit that OPG's proposal for a 25% fixed payment for its nuclear division should be rejected. It is clear that OPG has and continues to face a difficult task in operating its reactor fleet efficiently. OPG should be given every incentive to optimize its production effort. Several witnesses were asked to provide examples of generators receiving payments for non-production. None could provide such a precedent. The fixed payment approach (as opposed to a deferral account) does not even allow the Board an opportunity to enquire into the prudence of the company's actions before awarding payments.

#### **C. Costs**

GEC-Pembina-OSEA respectfully request their costs of intervention.

**All of which is respectfully submitted this 8th Day of June, 2008.**

**David Poch  
Counsel to GEC-Pembina-OSEA**