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April 1, 2008

BY EMAIL & BY COURIER

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
2300 Yonge St, Suite 2701
Toronto ON M4P 1E4

Ms. Walli:

Board File No. EB-2007-0905
Payment Amounts for Ontario Power Generation Inc.'s Prescribed Facilities
Energy Probe Interrogatories Set # 3

Attached please find two hard copies of Set # 3 of the Interrogatories of Energy Probe Research Foundation (Energy Probe) in response to Procedural Order No. 2, issued March 20, 2008. An electronic version of this communication will be forwarded in PDF and Word formats.

Should you require additional information, please do not hesitate to contact me.

Yours truly,

David S. MacIntosh
Case Manager

cc. Barbara Reuber, Ontario Power Generation Inc. (By email)
Michael A. Penny, Torsys LLP (By email)
Josephina D. Erzetic, Ontario Power Generation Inc. (By email)
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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.

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

SET NUMBER 3

April 1, 2008

ONTARIO POWER GENERATION INC.
DETERMINING PAYMENT AMOUNTS
EB-2007-0905

ENERGY PROBE RESEARCH FOUNDATION
INTERROGATORIES – SET NUMBER 3

Interrogatory # 25

Ref: Exh. C

Issue 2.1: What is the appropriate capital structure for OPG's regulated business for the 2008 and 2009 test years? Should the same capital structure be used for both OPG's regulated hydroelectric and nuclear businesses? If not, what capital structure is appropriate for each business?

In its current deliberations on the Business Case for the Refurbishment of Pickering-B, is OPG assuming that its future compensation for Pickering-B's output will be dictated by a future O.E.B. cost-of-service hearing like this one, or by a "side deal" like those signed by O.P.A. and Bruce Power? If that assumption is based on anything, please explain.

Interrogatory # 26

Ref: Exh. C2/T 1/S 1, p. 69

Issue 2.2: What is the appropriate return on equity (ROE) for OPG's regulated business for the 2008 and 2009 test years? Should the ROE be the same for both OPG's regulated hydroelectric and nuclear businesses? If not, what is the appropriate ROE for each business?

- a) For each of the past five (5) years, please indicate how often (in hours/year or %) OPG's compensation for nuclear generation exceeded the IESO's market price for electricity at the time.
- b) Please provide a forecast for 2008 and 2009.

Interrogatory # 27

Ref: Exh. C2/T 1/S 1

Issue 2.2: What is the appropriate return on equity (ROE) for OPG's regulated business for the 2008 and 2009 test years? Should the ROE be the same for both OPG's regulated hydroelectric and nuclear businesses? If not, what is the appropriate ROE for each business?

Regarding OPG's choice of 10.5% Return on Equity:

- a) Since the evidence indicates that nuclear stations bring especially high levels of risk, why has OPG chosen to apply the same RoE to Hydroelectric and Nuclear assets? What would be the effect of assigning two separate technology-specific and risk-related RoEs to OPG's Hydroelectric and Nuclear assets?
- b) Is OPG internally applying a 10.5% RoE to its Pickering-B Refurbishment Project? To Nuclear New Build? If OPG uses or supports different RoEs for these different nuclear projects and facilities, please explain why.

Interrogatory # 28

Ref: Exh. F2/T 2/S 1, p. 8

Issue 2.2: What is the appropriate return on equity (ROE) for OPG's regulated business for the 2008 and 2009 test years? Should the ROE be the same for both OPG's regulated hydroelectric and nuclear businesses? If not, what is the appropriate ROE for each business?

OPG's evidence lists OPG's "Non-Standard [Nuclear] Fleet" as a driver of high costs.

Please explain the impact of the choice between Pickering-B Refurbishment vs. New Build on this cost driver. Is this impact being explicitly considered in the deliberations on the Pickering-B Refurbishment?

Interrogatory # 29

Ref: Exh. E2/T 1/S 1

Issue 4.1: Is the methodology used by OPG to generate the proposed hydroelectric and nuclear business production forecasts appropriate?

- a) What has been the actual historic average annual rate of Forced Production Losses (FLR) for OPG's nuclear generating units, over the years?
 - (i) Please present the results both including and excluding reactors that are on long-term shutdown or prematurely shut down.
 - (ii) Please present the results disaggregated for each reactor, for each year of operation.
 - (iii) Please present the average for all units in their first year of operation, all units in their second year of operation, and so on, and please include all 20 OPG units.
- b) Is it OPG's position that the historical record is significantly different than the forecast rate? If so, please explain.
- c) Is it OPG's position that the historical record shows a significant trend with unit age? If so, does OPG's forecast reflect the continuation of that trend? Please explain.

Interrogatory # 30

Ref: Exh. E2/T 1/S 1, p.9

Issue 4.1: Is the methodology used by OPG to generate the proposed hydroelectric and nuclear business production forecasts appropriate?

OPG's evidence refers to "Known Risks" as one of the inputs to OPG's Forced Production Loss rate.

- a) Does OPG expressly or formally forecast unknown risks that can cause Forced Production Losses? Please explain.
- b) Please itemize the various "known risks" that have caused previous Forced Production Losses, and indicate for each one when it gained the status of "known risk".

- c) For each of the past five (5) years, please describe the total FLR, and indicate what percentage of that total FLR was due to then-known risks and what percentage from other, then-unknown, risks.
- d) For each reactor-year of Ontario's multi-year, multi-CANDU-unit outage (ca. 1997-2004), please indicate whether the loss of generation was attributed to a then "known" or "unknown" risk.
- e) Was the many-year outage of Bruce Unit 2 -- widely attributed to the fact that a lead blanket was accidentally left behind during a maintenance outage -- attributed by Hydro/OPG to a "known" or an "unknown" risk?

Interrogatory # 31

Ref: Exh. E

Issue 4.1: Is the methodology used by OPG to generate the proposed hydroelectric and nuclear business production forecasts appropriate?

Was FLR forecast for OPG's nuclear units in past years? Was Availability or Capacity Factor forecast? For each "yes" answer, please provide the forecasts and the actuals for all available years since 2003.

Interrogatory # 32

Ref: Exh. E

Issue 4.1: Is the methodology used by OPG to generate the proposed hydroelectric and nuclear business production forecasts appropriate?

Based on information provided by OPG, an independent government-appointed task force predicted that the two refurbished reactors at Pickering-A would achieve Capacity Factors of 85%.

What was OPG's predicted probability of Pickering-A achieving actual Capacity Factors as low as those it has really attained since refurbishment? If that number is not available, please provide all available confidence data attached to those forecasts, including (but not limited to) 95% Confidence Intervals, Standard Deviations, etc.

Interrogatory # 33

Ref: Exh. E2/T 1/S 1

Issue 4.1: Is the methodology used by OPG to generate the proposed hydroelectric and nuclear business production forecasts appropriate?

According to OPG's evidence, the Nuclear Integrated Plan "forms the basis for generating production targets in the business plan." Here and elsewhere in the evidence, we are confused by OPG's use of the words "target" and "forecast".

- a) Does the word "targets" mean the same thing to OPG as "forecasts" or do they mean different things? Please explain.
- b) In our experience, common English-language parlance uses "target" to signify a hopeful or aspirational prediction, and "forecast" to signify a most-likely or realistic prediction. If the words mean different things to OPG, are OPG's numbers -- e.g., for nuclear Forced Production Losses and Availability Factors -- to be taken as aspirational "targets" or realistic "forecasts"? If they mean the same thing, why are two words used instead of one?

Interrogatory # 34

Ref: Exh. E2/T 1/S 1, p. 16

Issue 4.1: Is the methodology used by OPG to generate the proposed hydroelectric and nuclear business production forecasts appropriate?

According to the evidence, Darlington NGS is implementing a three-year cycle for planned outages which we understand is "industry leading".

- a) How long ago was this change made?
- b) Are there any signs that other nuclear operators are following suit, or that they have decided not to? Please explain.
- c) Has OPG received any correspondence or other indication from Bruce Power or Hydro Quebec or N.B. Power indicating their intentions?

Interrogatory # 35

Ref: Exh. C2/T 1/S 1, p. 65

Issue 4.1: Is the methodology used by OPG to generate the proposed hydroelectric and nuclear business production forecasts appropriate?

In Exh. C2, reference is made to "the risk that the hydroelectric assets will not be dispatched." In OPG's Stakeholder Meeting materials, the statement was made that "The energy output from the [SAB energy production] model is adjusted to reflect factors . . . such as . . . spill loss due to excess base generation in the IESO system. . ."

How often and to what extent did "excess base generation" or non-dispatch affect OPG's output for each of the past five (5) years, and how often and to what extent is it forecast to do so in 2008 and in 2009?

Interrogatory # 36

Ref: Exh. F2/T 4/S 1 & S 2

Issue 5.8: Is the methodology for deriving the nuclear outage OM&A budget and the forecast of outage OM&A costs appropriate?

Do the two refurbished reactors at Pickering-A now have two separate and diverse and fully capable fast shutdown systems, capable of satisfying the CNSC design requirements that were in place for Bruce-B and Darlington NGS? Please distinguish carefully between an "Enhanced" SDS and a full two-fast-shutdown-system implementation.

Interrogatory # 37

Ref: Exh. F2/T 4/S 1 & S 2

Issue 5.8: Is the methodology for deriving the nuclear outage OM&A budget and the forecast of outage OM&A costs appropriate?

The evidence (Exh. A1 / T 4 / S 3, p. 3) refers to "Evolving/Escalating Regulatory Standards" as a driver of nuclear costs, and states that "The requirement to meet nuclear safety regulations and standards imposed by the federal Nuclear Safety and Control Act, and the need to satisfy OPG's nuclear regulator, the CNSC, drives a large number of base OM&A work activities."

Is OPG aware of any instances where CNSC has required OPG to undertake safety-related changes -- including capital modifications and/or operating changes -- that OPG would not have undertaken in the absence of CNSC regulatory pressure? If so, please explain. If there are few or none, please explain the contrary implication of the evidence.