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August 15, 2012

Mr. Pankaj Sardana
Vice President, Regulatory Affairs
Ontario Power Generation
700 University Avenue
Toronto, Ontario M5G 1X6

Dear Pankaj,

Re: Pickering NGS Continued Operation and Darlington NGS Refurbishment

The Ontario Power Authority supports Ontario Power Generation's proposals for expenditures in 2013 and 2014 to maintain the options of continued operation at Pickering NGS and refurbishment of Darlington NGS.

The Ontario Power Authority ("OPA") has evaluated the merit of these options and will continue to evaluate them as circumstances evolve.

Pickering NGS Continued Operation

In absence of continued operation, the six generating units (3,094 MW) that are currently in operation at Pickering NGS are expected to cease operation beginning around 2015. The feasibility of continued operation is expected to be confirmed by the end of 2012. If feasible, it would provide the option to continue to operate the units at Pickering NGS through to approximately 2020.

From 2013 to 2014, it will be necessary for OPG to incur up to \$85 million at Pickering NGS to preserve the option of continued operation through additional inspection and maintenance work. It will be necessary for OPG to increase the number of generating unit planned outage hours at Pickering NGS during the 2013 to 2014 period to perform this work.

OPG has provided the OPA with updated information regarding their proposal for the continued operation of Pickering NGS (Appendix 1). The OPA has evaluated the effects of Pickering NGS continued operation on various aspects of the integrated power system, including capacity and energy requirements, system costs, Ontario CO₂ emissions, and transmission implications.

The OPA's analysis to date identifies a number of potential merits to preserving the option of continued operation at Pickering NGS. These include:

- Reduced need for replacement capacity and energy during part of the nuclear refurbishment period. Without continued operation and if all currently directed resources proceed as planned, between nearly 1,000 MW and 3,000 MW of capacity replacement would be required between 2016 and 2020.

- An approximately 11 megatonne reduction in Ontario CO₂ emissions between 2015 and 2020.
- Potential for deferral of some investments in transmission enhancements needed to maintain reliable load supply to customers in the east GTA upon retirement of Pickering NGS. This is further described in OPA's evidence to Hydro One regarding the need and rationale for "Oshawa Area" TS (EB-2012-0031, Exhibit D1-3-3 Appendix B).
- A hedge against mid-term uncertainties that could result in additional replacement requirements.

The OPA's assessment illustrates that cost implications of Pickering continued operation could vary across a wide range of potential circumstances. Key factors in this context include electricity demand, price of natural gas; price of carbon; length of the continued operation period; magnitude of capital and fixed operating costs and quantity of production from Pickering NGS during the continued operation period.

On balance, the OPA's assessment of system cost impacts suggests an expected cost advantage to Pickering continued operation (in the order of approximately \$100 Million). This advantage predominantly reflects expected costs savings from reduced natural gas-fired energy production and lower replacement capacity requirements. Based on evaluation to date of the broader uncertainties, the OPA estimates a range of up to approximately \$1.3 billion in potential net-benefit from Pickering continued operation to \$0.76 billion in potential net-cost (dis-benefit). These estimates represent illustrative bookends and explore combinations of factors that together would increase or decrease the cost impacts of Pickering continued operation. Some of the factors outlined are out of OPG's control, while others, such as station operational performance and cost, are within OPG's control. Opportunities for enhancing value through further coordination of other nuclear plans with plans for continued operations at Pickering have not yet been considered in the OPA's assessment. The OPA expects to explore such opportunities over the coming year.

An additional consideration that was not quantitatively reflected in its cost assessment of Pickering continued operation, but which informs the OPA's perspective on the option is the hedge that Pickering continued operation could provide against mid-term uncertainties. Continued operations at Pickering would see approximately 3,000 MW of nuclear supply remain available during a period of significant transition in the Ontario power system. This mid-term period, roughly spanning the years 2015 to 2020, immediately follows the shutdown of coal-fired generation in Ontario and features the following:

- Multiple concurrent refurbishment outages and restarts among Ontario's nuclear stations (the plans for which remain in development in some instances)
- Potential unit retirements at several currently existing natural gas-fired generators
- Sizeable expected contributions from conservation programs over and above already significant levels of anticipated natural efficiency gains in the Ontario economy
- Expected implementation of a substantial number of supply resources that are presently contractually committed or directed, and
- Uncertainty related to the pace of economic recovery in the province.

In short, the mid-term period involves significant transition and many moving pieces, some of which remain to be resolved and each of which present some degree of risk. Continued operation at Pickering is seen by the OPA as a timely and potentially helpful source of insurance within this dynamic context.

Darlington NGS Refurbishment

The four-units at Darlington NGS (3,512 MW) entered service between 1990 and 1993. The Darlington design includes the need for major refurbishment at mid-life. Without refurbishment, Darlington NGS would cease production in 2020. With refurbishment, Darlington NGS would continue production until 2054 (Appendix 2).

OPG has been active on Darlington NGS refurbishment planning and development work since 2007. Total investment in capital and OM&A is expected to total approximately \$370 M by the end of 2012. To date, there has been significant refinement in scope and OPG has expressed high confidence in project costs and project execution. The Darlington Refurbishment Project is now in the Definition Phase and OPG has proceeded with contracting and procurement of labour and materials.

The OPA's support for expenditures in 2013-2014 to preserve the option of Darlington refurbishment is based on strategic considerations supported by cost comparisons. Strategic considerations prevail given the long time-period under consideration (to 2054) and correspondingly high degree of uncertainty. The cost comparisons developed by the OPA are to be taken in the context of uncertainty, including with respect to the long-term supply and price of natural gas, value of carbon and cost of new nuclear - all three come with a wide range of uncertainty.

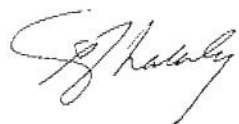
On balance, the preservation of approximately 3,500 MW and 28 TWh of nuclear supply on an existing site with access to services and transmission is seen to have merit in terms of shorter lead-time, community acceptance, impacts on the environment and cost. In consideration of the longer-term uncertainties, the OPA's probabilistic analysis suggests a high likelihood that refurbishing Darlington NGS would be less costly than other sources of supply, including new nuclear or new gas-fired facilities, for a wide range of potential future conditions.

In addition to the above considerations, the OPA estimates that the option would not add significantly to carbon emissions in the province. In comparison, an equivalent natural gas-fired alternative would increase CO₂ emissions by an average of 10 megatonnes annually between 2024 and 2054. This would approximately triple the annual volume of CO₂ emissions for Ontario that is otherwise projected for the long-term.

Further, the OPA views Darlington refurbishment as supportive of the diversity and performance of Ontario's long-term electricity supply mix. The rationale for a diverse supply mix relates to considerations of uncertainty, risk mitigation and security of supply. Recognition of nuclear energy in these and other regards is found in the OPA's Supply Mix Advice provided to the Ontario Government in December 2005, the Integrated Power System Plan submitted to the Ontario Energy Board in 2007 (EB-2007-0707), the Ontario Government's Long-Term Energy Plan issued in 2010 and, subsequently, in the 2011 Supply Mix Directive. Each of these identifies an important role for nuclear energy in Ontario's long-term supply mix. Refurbishment of Darlington, in addition to the merits outlined above, is consistent with this direction.

In closing, the OPA supports OPG's proposals for expenditures in 2013 and 2014 to maintain the options of continued operation at Pickering NGS and refurbishment of Darlington NGS. The OPA has evaluated the options and will continue to evaluate them as circumstances evolve. Please feel free to contact us should you require additional information.

Regards,



Amir Shalaby
Vice-President, Power System Planning
Ontario Power Authority

CC
Ethan Kohn
Joel Sheinfield
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Andrew Pietrewicz

Appendix 1 - Information Received from OPG Regarding Pickering NGS Continued Operation

Incremental Generation in 2013 to 2020 Due to Continued Operation (TWh)								
Year	2013	2014	2015	2016	2017	2018	2019	2020
Pickering A (TWh)	0.0	0.0	0.0	5.2	7.3	7.3	7.3	8.2
Pickering B (TWh)	1.3	4.7	4.6	11.4	15.3	14.7	13.0	9.1
Total	1.3	4.7	4.6	16.6	22.6	21.9	20.3	17.2

Incremental Costs in 2013 to 2020 Due to Continued Operation (2012 \$ M) (1)								
Year	2013	2014	2015	2016	2017	2018	2019	2020
Capital and OM&A For Plant Operation	\$18	\$52	\$282	\$764	\$878	\$889	\$821	\$575
Costs to Enable Continued Operation in 2013-2014	\$38	\$47	\$0	\$0	\$0	\$0	\$0	\$0
Fuel & Fuel Related Costs	\$8	\$28	\$27	\$94	\$135	\$114	\$110	\$93
Total Continued Operation Cost	\$64	\$126	\$310	\$858	\$1,013	\$1,003	\$931	\$668

(1) Total OM&A & Capital includes station OM&A (base, outage, projects) and sustaining capital projects and the station's share of incremental allocated nuclear and corporate support costs. These costs do not include the severance costs associated with each scenario.

Incremental Planned Outage Days in 2013 to 2020 Due to Continued Operation								
Year	2013	2014	2015	2016	2017	2018	2019	2020
Pickering A Incremental Planned Outage Days	0	0	0	78	87	85	76	0
Pickering B Incremental Planned Outage Days	-114	-157	337	297	146	196	73	0

Appendix 2 - Information Received from OPG Regarding Darlington NGS Refurbishment

Darlington NGS Refurbishment Schedule						
Unit	Unit Shutdown Date	Idle Time (months)	Refurbishment Start Date	Refurbishment End Date	Shutdown Date Post-Refurbishment	Refurb. Duration (months)
1	Same as Refurbishment Start	0	Oct - 2016	Dec - 2019	Dec - 2049	39
2	Same as Refurbishment Start	0	May - 2018	May - 2021	May - 2051	37
3	Same as Refurbishment Start	0	Dec - 2019	Oct - 2022	Oct - 2052	35
4	Jul - 2020	10	May - 2021	Jan - 2024	Jan - 2054	33