



Lake Ontario Waterkeeper  
231 Wallace Avenue  
Toronto, ON M6H 1V5

**BY EMAIL AND MAIL**

August 26, 2014

**Attn: Ms. Kirsten Walli, Board Secretary**

Ontario Energy Board  
P.O. Box 2319  
2300 Yonge Street, 27th Floor  
Toronto, ON M4P 1E4  
Email: [BoardSec@ontarioenergyboard.ca](mailto:BoardSec@ontarioenergyboard.ca)

**Re: Ontario Power Generation  
2014/2015 Payment Amounts Application  
Board File Number: EB-2013-0321**

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To Ms. Walli,

Please find attached the final written submissions of Lake Ontario Waterkeeper in the abovementioned proceeding.

If you have any further questions or requests, please do not hesitate to contact our counsel, Pippa Feinstein at 647 923 4927 or [feinstei@ualberta.ca](mailto:feinstei@ualberta.ca).

Two hard copies of our submission will be sent to the Board.

Sincerely,

A handwritten signature in black ink, appearing to read 'Mark Mattson', with a long horizontal flourish extending to the right.

Mark Mattson  
President and Waterkeeper

**Before the 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.

**Lake Ontario Waterkeeper Final Written Submissions**

1. Lake Ontario is home to important, unique, and complex ecosystems. It provides crucial habitat to several federally and provincially recognized species at risk including the Round Whitefish, Atlantic Salmon, and American Eel. The lake also provides millions of people in the province with their drinking water, and constitutes important public recreational space.
2. However, industrial development along Lake Ontario's northern shore poses a significant threat to local water quality and aquatic biota. While, some local ecosystems are just beginning to recover from earlier industrial devastation (due to the emergence and development of environmental law over the last three decades) this resurgence is slow and its progress is fragile. In particular, the nuclear industry threatens some of the successes we have recently achieved in restoring the ecosystems along the northern shoreline of our lake.
3. Lake Ontario Waterkeeper ("Waterkeeper"), has developed considerable knowledge and expertise concerning the local environmental impacts of the Darlington Nuclear Generating Station ("Darlington NGS") and its Refurbishment Project on Lake Ontario. We have limited our intervention in the current rate application process to Ontario Power Generation's ("OPG") budgets for the

Darlington Refurbishment Project. Through our intervention, we seek to help the Board identify whether OPG has allocated adequate funding to account for the local environmental impacts of the Darlington Refurbishment Project.

4. Our submissions concern the following issues identified for this hearing:
  - a. 4.9: Are the proposed test period in-service additions for the Darlington Refurbishment Project) appropriate?,
  - b. 4.10: Are the proposed test period capital expenditures associated with the Darlington Refurbishment Project reasonable?, and
  - c. 6.7: Is the test period Operations, Maintenance and Administration budget for the Darlington Refurbishment Project appropriate?.
5. Waterkeeper submits that OPG's proposed costs for the Refurbishment Project should only be deemed reasonable and appropriate if the Board finds adequate provision has been made for the environment. Such a finding falls under the Board's public interest mandate, since a healthy Lake Ontario is in the best interests of Ontarians. Further, adequately managing environmental risks of the project now, can minimize potential cost escalations in the future.
6. The Darlington Refurbishment Project is currently still in its "definition phase"<sup>1</sup>. It's total cost is estimated at \$12.9 billion<sup>2</sup>, approximately \$1.68 billion of which is expected to be spent during the 2014-2015 test period<sup>3</sup>. Thus, the Refurbishment Project is still in its early planning stages. As such, this is an ideal time to ensure environmental budgets and plans for the Refurbishment Project are considered early and pursued throughout the remainder of the Refurbishment Project.
7. OPG carries the burden of proving their future spending will adequately address and mitigate the adverse impacts of the Darlington Refurbishment Project on the health of Lake Ontario. However, virtually no information concerning the environment was provided in OPG's original application and supporting documents. Most of the environmental evidence on the record for this proceeding is a result of Waterkeeper's interrogatories, and participation in technical conferences and the oral hearing.

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<sup>1</sup> OPG Ex A1-03-01, p3.

<sup>2</sup> OPG Ex D2-02-01 Attachment 5, p2.

<sup>3</sup> OPG Ex D2-02-02, p7.

8. Still, OPG has yet to argue that their proposed environmental budgets sufficiently minimize environmental risk (and resulting costs). This makes any assessment of the adequacy of the proposed environmental budgets challenging.
9. If the Board finds OPG's expected environmental costs to be appropriate, and finds OPG has adequately taken environmental impacts of the project into account for the test period, Waterkeeper recommends that the Board place two conditions on their approval of OPG's rate increase.
10. First, we recommend that the Board require OPG to provide updates concerning the progress and actual costs of the 1) Environmental Assessment Follow-up ("EA Follow-up") studies, 2) other Refurbishment Project environmental monitoring studies, and 3) any adaptive management projects.
11. Second, we recommend that the Board require that OPG provide detailed updates to demonstrate how their environmental oversight bodies have taken adequate account of cumulative environmental effects of the Darlington Refurbishment Project. OPG should also be required to demonstrate how they can adequately prevent, mitigate, and learn from environmental accidents or other contingencies.
12. Both updates should be included in OPG's subsequent rate applications before the Board for the duration of the Refurbishment period.
13. These recommendations are directly related to (and subsumed under) the Board's public interest mandate, as a healthy Lake Ontario is in the public's interest. Further, these recommendations would help the Board to ensure that OPG properly accounts for the cost of environmental protection measures, and prudently manages its environmental risks.

#### Environmental Impacts of the Darlington Refurbishment Project

14. There are three broad categories of environmental impacts of the Darlington Refurbishment Project: 1) environmental impacts of the Darlington NGS's once-through cooling systems, 2) environmental impacts of stormwater runoff from contaminated land at the Darlington NGS site, and 3) broad cumulative environmental impacts of various Darlington NGS operations.
15. Through our past involvement in the Environmental Assessment for the Darlington Refurbishment Project, we have developed a detailed understanding of the environmental impacts of the Darlington NGS's once through cooling systems. The

Darlington NGS depends on lake water to pass through and cool down its nuclear generators. These cooling systems can intake up to 155m<sup>3</sup> of lake water per second<sup>4</sup>, and the water intakes are responsible for significant fish kills each year. Each year, hundreds of thousands of fish are impinged by (i.e. sucked into, and crushed against) the intake grates of the cooling system<sup>5</sup>. Similarly, millions of fish eggs, larvae, and smaller aquatic organisms are entrained by (i.e. sucked into, and injured or killed in) the cooling water system<sup>6</sup>. Once this lake water has passed through and cooled the generators, it is subsequently released back into the lake. The released water is significantly warmer than surrounding ambient lake water temperatures, and also contains harmful chemicals such as chlorine. The resulting thermal and chemical pollution constitutes another environmental stressor on the lake's ecosystems<sup>7</sup>.

16. In addition to the impacts of cooling systems outlined above, there are several areas at the Darlington NGS site that have been identified as being contaminated. These areas can pose a danger to surrounding lake water during rainfall, as stormwater can introduce contaminants from the land into surrounding lake water. The dangers of stormwater pollution are elevated during the Darlington refurbishment because of the potential for construction sites to uncover and release more contaminants that may be washed into the lake. Because the Darlington NGS has been an active industrial site for over 30 years, the contaminant build-up could be very significant.
17. The third category of environmental impact involves cumulative effects. This is the broadest category, as an assessment of cumulative environmental impacts of the Darlington NGS site involves an examining how several distinct environmental impacts interrelate. For example, instead of assessing thermal pollution and chemical effluents separately, one would study how both affect water quality when they are together. Or, if there is a spill or leak at the Darlington site, studying its cumulative effects would measure how it would impact stormwater runoff from the site. Assessments of cumulative impacts of the Refurbishment Project need

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<sup>4</sup> P A Henderson, Comments on Environmental Studies Relating to the Darlington Nuclear Generating Station Refurbishment and Continued Operation Project, July 2012. Online: <<http://www.waterkeeper.ca>>, p5.

<sup>5</sup> *Ibid.*

<sup>6</sup> *Ibid.*, p8.

<sup>7</sup> *Ibid.*, p10.

to be conducted over time, and require a broad examination of many different aspects of the Darlington NGS and Refurbishment Project.

*Environmental Studies*

18. Both the cooling water and stormwater impacts explained above are addressed in the EA Follow-up plan for the Darlington Refurbishment Project. No costs associated with these projects was included in OPG’s initial application. However, through our information requests, OPG has provided the following cost breakdown<sup>8</sup>:

<b>Environmental Follow-up Program Study Element:</b>	<b>Estimated Budget (2014)</b>	<b>Estimated Budget (2015)</b>
<b>Surface Water Study (Liquid Effluents):</b>	\$60K	\$30K
<b>Surface Water Study (Stormwater):</b>	0	0
<b>Aquatic Habitat/Biota Study (Cooling Water):</b>	\$60K	\$10K
<b>Aquatic Habitat Study (Impingement and Entrainment):</b>		
1. Entrainment monitoring	1. \$150K	1. \$150K
2. Benthic invertebrate community study	2. \$100K	2. \$100K
3. Impingement and entrainment monitoring	3. 0	3. 0

19. In addition to the EA Follow-up costs above, additional environmental monitoring is conducted at the Darlington NGS site. Through our information requests, OPG provided the following cost breakdown<sup>9</sup>:

<b>Ongoing Darlington Environmental Program Costs</b>	<b>Total Estimate (\$M) 2014-2015</b>
Refurbishment Environmental Support (Labour)	2.1
Environmental Governance and Compliance Management	1.1

<sup>8</sup> Final Oral Hearing, OPG Undertaking Response J14.6.

<sup>9</sup> Technical Conference #1, OPG Undertaking Response JT2.4.

Waste, Effluent, and Chemical Management	1.2
Groundwater Monitoring	0.3
Sampling and Analysis for Chemical Waste, Groundwater Wells	0.8
Biodiversity Studies and Monitoring	0.2
Chemistry Laboratory Support for Environmental Monitoring	0.2
Stack and Filter Testing Emissions Verification	0.4
Radiological Environmental Monitoring Program	1.0
<b>TOTAL:</b>	<b>9.2</b>

20. While these charts confirm that funds have been allocated to these projects, they provide little evidence upon which to determine whether these costs are prudent. Further, as detailed costs have not been provided for OPG's environmental programs in their past rate applications before the Board, there is little against which these costs can be compared. As such, assessing the adequacy of these budgeted amounts is challenging.

21. If the Board were to find the environmental budgets are adequate for the test period, we submit it would assist the Board to require OPG to provide progress updates in future rate applications. The inclusion of these budgets in this proceeding creates an important baseline against which future environmental costs can now be measured. These future updates should contain figures outlining OPG's actual spending on EA Follow-up programs, as well as the other environmental monitoring projects included in the charts above, so that their actual costs can be compared with the previous budgeted amounts. Over time, these updates would assist the Board in assessing whether the environmental costs of the Darlington Refurbishment Project are managed prudently. Any cost overruns, or delays in conducting the monitoring projects could be also assessed in those future hearings, increasing OPG's public accountability.

*Cumulative Effects*

22. Through OPG's responses to Waterkeeper's information requests over the course of this proceeding, it became clear that the company has no formalized system to assess the cumulative environmental impacts of the Darlington Refurbishment. OPG has confirmed there is no specific integration or cross-referencing between the various environmental studies that occur at the Darlington site. This may mean that certain cumulative impacts of the site may not be identified or studied, and as a result expose OPG to environmental risks and resulting cost uncertainty.
23. In the third quarter of 2013, there was a tritium release at the Darlington NGS site which delayed construction while remediation efforts were pursued<sup>10</sup>. This was briefly mentioned in a Burns & McDonnell/Modus ("BMCD/M") report as a 'key event' and it caused cost increases due to remediation efforts and a delay in construction of the campus plan projects. However, there is no evidence that this event was studied in any detail by any specific oversight body<sup>11</sup>. Further, although OPG and BMCD/M had the relevant environmental expertise to study and learn from this event, there is little evidence to suggest this happened<sup>12</sup>.
24. There are several oversight bodies for the Darlington Refurbishment Project's environmental programs: the Darlington Environmental Review Team (DERT); the Nuclear Oversight Committee (NOC); and BMCD/M a third party consultant that provides advice to OPG about managing large projects and has significant environmental expertise<sup>13</sup>.
25. However, it is unclear how these oversight bodies interact with one another. OPG has not clearly explained how these bodies would manage an event such as a construction accident that may result in harm to the environment, or how they would account for a future contingency such as finding out there were more serious contamination issues than previously thought at a construction site. There are no specific funds set aside for studying or mitigating events such as these in OPG's budgets. Further, it is not clear which oversight body would be responsible for responding to and learning from such an event.
26. We recommend that the Board require that OPG provide detailed updates concerning the environmental oversight structure for the Darlington Refurbishment

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<sup>10</sup> OPG Ex D2-02-02, Attachment 1, p7. Technical Conference #2 Transcript, p130.

<sup>11</sup> Technical Conference #2 Transcript, p130.

<sup>12</sup> *Ibid.*, p131.

<sup>13</sup> *Ibid.*, p129.



Project in subsequent rate applications. We recommend that OPG also include updates regarding whether any oversight bodies are assessing the cumulative environmental effects of Darlington operations. Approval of OPG's budgets should only occur where the Board is satisfied OPG can take adequate account of cumulative environmental impacts of the Darlington Refurbishment Project, and that they can adequately prevent, mitigate, study and learn from environmental accidents or other contingencies.

### *Conclusion*

27. Waterkeeper submits that OPG's proposed costs for the Refurbishment Project should only be deemed reasonable and appropriate, if the Board finds adequate provision has made for the environment. This is consistent with the Board's public interest mandate, since a healthy Lake Ontario is in the best interests of Ontarians. Also, adequately managing environmental risks of the project now, can minimize any potential cost escalations in the future.

28. If the environmental costs are found to be reasonable, we have two further recommendations for the Board:

- a. First, we recommend that the Board require OPG to provide updates concerning the progress and actual costs of the 1) Environmental Assessment Follow-up ("EA Follow-up") studies, 2) other Refurbishment Project environmental monitoring studies, and 3) any adaptive management projects.
- b. Second, we recommend that the Board require that OPG provide detailed updates demonstrating how oversight bodies ensure cumulative environmental effects of the Darlington Refurbishment Project are assessed.

29. All of which is respectfully submitted this 26th day of August, 2014