



# Maximizing the Value of OPG

A Submission to the Premier's Advisory Council on Government Assets

AUGUST 2014

## Introduction

On April 11, 2014 the Government of Ontario established the Premier's Advisory Council on Government Assets to recommend ways to maximize the value of Ontario Power Generation (OPG) and other government enterprises.

To maximize the value of OPG and bring its return on equity in line with other regulated entities, OPG needs to refocus its operations on its low-cost, high-profit water power assets and move away from high-cost, high-risk nuclear projects.

OPG's predecessor, Ontario Hydro, was essentially bankrupted by its pursuit of nuclear megaprojects, leaving the provincial government holding a stranded debt of roughly \$20 billion.<sup>1</sup> Paying off this debt has added to electricity costs for businesses and consumers alike. In addition, it has absorbed all the provincial income tax payments from OPG, Hydro One and more than 70 local electricity utilities for the past 15 years. It has also absorbed all the dividend payments made to the government by OPG and Hydro One over this timeframe.

Despite repeated assurances of strict cost control and better approaches, each and every major nuclear project undertaken in Ontario has run massively over budget.<sup>2</sup> In addition, the actual cost of retrofitting the Point LePreau Nuclear Station in New Brunswick was more than double the original estimate.<sup>3</sup>

## The Darlington Re-Build Project

If OPG continues on its current track of pursuing a re-build of its Darlington Nuclear Station, the utility will set the province up for another energy project cost disaster that will lead to higher electricity prices, further weaken OPG's profitability, and saddle the province with increased debt. Of course, nuclear projects also involve high ongoing staffing costs and ongoing accumulation of difficult-to-dispose radioactive waste.

According to OPG's preliminary "high-confidence" estimate, a re-built Darlington Nuclear Station will produce electricity at a cost of 8.9 cents per kWh.<sup>4</sup> This claim is based on the following assumptions:

- The project's capital cost will be \$12.9 billion;
- The project will be 53% debt-financed at an interest rate of 5.94%; and 47% equity-financed with a return on equity of 9.85%;
- The re-built Darlington Nuclear Station will have an annual capacity factor of 82%.<sup>5</sup>

One of the clearest indicators of the high financial risk of the Darlington Re-Build Project is OPG's request that the Government of Ontario provide 100% of its debt and equity financing *at below market rates of return*.

**Ontario Hydro was essentially bankrupted by its pursuit of nuclear megaprojects, leaving the provincial government holding a stranded debt of roughly \$20 billion**

**OPG wants ratepayers and the provincial government to cover cost overruns for the Darlington re-build project**

Specifically, OPG is requesting that all of its debt financing be provided by the Ontario Electricity Financial Corporation (an agency of the Government of Ontario). In addition, it is requesting the Government of Ontario to provide 100% of the project's equity financing with a best case scenario return on equity of only 9.85%.<sup>6</sup> In contrast, according to CIBC World Markets Inc., the required return on equity for the private sector Bruce A retrofit project was 13.7% to 18.0% assuming that only 20-40% of the project was debt financed as opposed to the 53% debt financing OPG is requesting for Darlington.<sup>7</sup>

In addition, the actual cost of electricity from a re-built Darlington Nuclear Station is likely to be significantly greater than 8.9 cents per kWh since every major nuclear project in Ontario's history has gone massively over budget — on average by 2.5 times. In particular, the original Darlington project was 4.5 times over budget.<sup>8</sup> The current re-build project is already \$300 million over budget before any actual construction work has even begun (this overrun is factored into the per kWh price above).<sup>9</sup>

According to Ontario's Long-Term Energy Plan, the Darlington Re-Build process must minimize "commercial risk on the part of ratepayers and the government".<sup>10</sup> Nevertheless, OPG is asking the Ontario Energy Board to approve a Darlington Re-Build process that will permit most of the cost overruns to be passed on to ratepayers and/or the government. Specifically, OPG will bear the primary risk with respect to over 93% of the project's costs. That is, less than 7% of the project will be undertaken by independent third-party contractors pursuant to fixed-price contracts.<sup>11</sup>

According to OPG, if the Darlington Re-Build Project goes over budget by 2.5 times, its cost of producing electricity will rise to 16.6 cents per kWh.<sup>12</sup>

Darlington cost overruns will lead to higher electricity prices for Ontario consumers and/or a lower return on equity for OPG's sole shareholder — the Government of Ontario. That is, cost overruns will exacerbate OPG's already poor financial performance. According to the Dominion Bond Rating Service:

"OPG's return on equity has been poor, ranging from -3% to 3% over the past five years, significantly below the level its regulated peers are typically allowed to earn in Ontario (8% to 10%)."<sup>13</sup>

Fortunately, Ontario's electricity needs can be met at a much lower cost by a combination of water power imports from Quebec and energy efficiency investments.

### **A Long-Term Electricity Contract with Hydro Quebec**

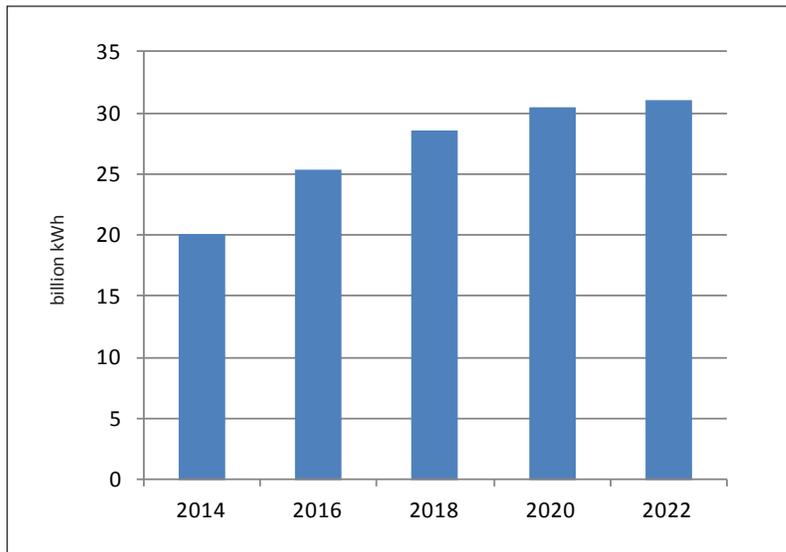
In 2013, Hydro Quebec exported 32 billion kWh of electricity. Most of these export sales were to the U.S., and 92% of these export sales were pursuant to short-term contracts.<sup>14</sup>

As a result of the shale gas revolution, which has dramatically reduced the cost of natural gas-fired electricity generation in the United States, the average price of Hydro Quebec's exports fell by more than 50% between 2008 and 2013.<sup>15</sup>

According to the Commission sur les enjeux energetiques du Quebec, Hydro Quebec can only obtain high prices for its exports during the 300 peak demand hours of each year. As a result of transmission constraints, Quebec can export a maximum of 10 billion kWh per year during this window or less than one-third of its current total export supply. Its remaining export power is sold at an average price of just 3 cents per kWh.<sup>16</sup>

The Commission is forecasting that Hydro Quebec will be exporting increasing amounts of low-cost power over the next eight years as its supplies grow but export prices remain flat. Specifically, it projects a 50% increase in exports that will be sold at the low off-peak price of 3 cents per kWh between now and 2022.

## Forecast of Hydro Quebec Electricity Exports at 3 Cents per kWh<sup>17</sup>



Since the cost of re-building Darlington will be at least three times greater than the price of most of Hydro Quebec's exports to the U.S., there are potentially huge economic benefits for Ontario and Quebec from increased electricity trade between our two provinces.

Currently, the electricity transfer capacity between Ontario and Quebec is 2,788 megawatts (MW).<sup>18</sup> This is a direct connection between the high-voltage systems in each province, the equivalent of two superhighways — such as Highway 401 and Route 20 — connecting at the provincial border. Therefore Ontario can import 24.4 billion kWh of electricity per year from Quebec using the existing transmission infrastructure.

In 2013 the total output of the Darlington Nuclear Station was 25.1 billion kWh.<sup>19</sup> This means that electricity imports from Quebec could displace 97% of Darlington's annual output.

By making it possible to cancel the high-cost Darlington Re-Build Project, Quebec electricity exports could save Ontario at least \$2.172 billion per year.<sup>20</sup> On the other hand, shifting electricity exports from the U.S. to Ontario would cost Hydro Quebec \$732 million per year.<sup>21</sup> Therefore the net economic benefit to Canada would be at least \$1.44 billion per year (\$2.172 billion - \$732 million). If this net benefit were split equally between Ontario and Quebec, each province would come out ahead by \$720 million per year. Over a 20-year contract term, this would be a \$14.4 billion gain for each province.

An equal benefit split could be made operational by a long-term contract that would allow Ontario to purchase water power from Quebec at a rate of 5.95 cents per kWh. For Ontario, this rate would represent a saving of more than 30% over the cost of power from a re-built Darlington Nuclear Station. For Quebec, it represents a virtual doubling of the rate it currently earns for the bulk of its power exports.

### Closing the Gap with Energy Efficiency

As discussed above, water power imports from Quebec have the potential to displace the equivalent of 97% of Darlington's output without the need to build additional transmission capacity between our two provinces. The remaining 3% could be replaced by increasing Ontario's energy efficiency.

According to the Ontario Power Authority, energy efficiency programs can save electricity at an average cost of only 3.5 cents per kWh.<sup>22</sup> Therefore replacing 3% of Darlington's output by increasing our energy productivity will save consumers an additional \$37.8 million per year.<sup>23</sup>

**Electricity imports from Quebec could displace 97% of Darlington's annual output**

The government will earn higher returns if OPG focuses on maximizing returns from its low-cost water power assets

## Conclusion

A long-term electricity supply contract with Hydro Quebec and increased energy efficiency investments combined with the cancellation of the Darlington Re-Build Project will provide the following benefits for Ontario:

- A reduction in our annual electricity bills of at least \$757.8 million (\$720 million plus \$37.8 million) per year – more than \$15 billion over 20 years;
- A reduction of the provincial debt by at least \$12.9 billion; and
- A higher return on equity for OPG.

Therefore, OPG should cancel its high-cost, high-risk Darlington Re-Build Project and focus on improving the performance of the 54 hydro-electric generating stations that it inherited from Ontario Hydro in 1999.

In 1998, during Ontario Hydro's last year of operation, these hydro-electric stations produced electricity at an average cost of 1.1 cents per kWh.<sup>24</sup> According to OPG, in 2015, they will produce enough power to meet about 23% of Ontario's electricity needs at a cost of 4.4 to 4.7 cents per kWh.<sup>25</sup> These great hydro-electric stations, which were built during the first half of the last century, are our lowest-cost sources of Made-in-Ontario electricity. They are the crown jewels of Ontario's electricity system and they are the logical place for OPG to invest.

## Endnotes

- 1 Ontario Clean Air Alliance Research Inc., *Ontario's Stranded Nuclear Debt: A Cautionary Tale*, (March 2011).
- 2 Ontario Clean Air Alliance Research Inc., *The Darlington Re-Build Consumer Protection Plan*, (September, 2010), Appendix A.
- 3 CBC News, "Point Lepreau costs could hit \$3.3B, PMO memo says", (July 11, 2013); URL: <http://www.cbc.ca/news/canada/new-brunswick/point-lepreau-costs-could-hit-3-3b-pmo-memo-says-1.1344861>
- 4 Ontario Energy Board Docket No. EB-2013-0321, Undertaking J14.4.
- 5 Ontario Energy Board Docket No. EB-2013-0321, Ex. L, Tab 4.7, Schedule 6, ED-005; Undertaking JT2.1 and Undertaking J14.4. Darlington's actual average annual capacity factor since it commenced operation in the 1990s has been 83%. See Undertaking J14.3.
- 6 EB-2013-0321, Undertaking JT2.1.
- 7 Letter from CIBC World Markets Inc. to James, Gillis, Ontario Deputy Minister of Energy, (October 17, 2005), pages 9 & 10.
- 8 Ontario Clean Air Alliance Research Inc., *The Darlington Re-Build Consumer Protection Plan*, (September, 2010), Appendix A.
- 9 [http://www.thestar.com/business/2014/07/04/darlington\\_nuclear\\_costs\\_rise\\_according\\_to\\_report.html](http://www.thestar.com/business/2014/07/04/darlington_nuclear_costs_rise_according_to_report.html)
- 10 Government of Ontario, *Achieving Balance: Ontario's Long-Term Energy Plan*, (December, 2013), page 29.
- 11 Ontario Energy Board Docket No. EB-2013-0321, Exhibit L, Tab 4.12, Schedule 6 ED-011; and Transcript Volume 15, Redacted – Public, pages 56, 57 & 58.
- 12 Ontario Energy Board Docket No. EB-2013-0321, Undertaking J14.2.
- 13 Dominion Bond Rating Service, *Ontario Power Generation Inc.*, (March 25, 2014), page 1.
- 14 Hydro Quebec, *Annual Report 2013*, page 99.
- 15 Commission sur les enjeux energetiques du Quebec, *Maitriser Notre Avenir Energetique*, (2 fevrier 2014), page 177 and Hydro Quebec, *Annual Report 2013*, page 99.
- 16 *Maitriser Notre Avenir Energetique*, pages 177, 181.
- 17 *Maitriser Notre Avenir Energetique*, page 183.
- 18 Ontario Energy Board Docket No. EB-2008-0272, Exhibit I, Tab 5, Schedule 6.
- 19 Ontario Energy Board Docket No. EB-2013-0321, Ex. L, Tab 4.7, Schedule 6 ED-007.
- 20 24.4 billion kWh x 8.9 cents per kWh.
- 21 24.4 billion x 3 cents per kWh.
- 22 Ontario Power Authority, *Conservation First Framework Update: Presentation to SAC*, (June 24, 2014), pages 7 & 8.
- 23 700 million kWh x (8.9 cents per kWh – 3.5 cents per kWh).
- 24 Ontario Hydro, *Final Annual Report: January 1998 – March 1999*, page 67.
- 25 According to OPG, its hydro-electric stations will produce 32.7 TWh of electricity in 2015; and according to the Independent Electricity System Operator (IESO), Ontario's total electricity consumption in 2015 will be 139.7 TWh. Ontario Energy Board Docket No. EB-2013-0321, Exhibit A1, Tab 3, Schedule 1, pages 1 and 4; and Exhibit E1, Tab 1, Schedule 1, Table 1; and IESO, *18-Month Outlook: From June 2014 to November 2015*, (June 19, 2014), page 4.



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