

Exporting Electricity: To Promote Greater Collaboration Between Québec and Ontario

JUNE 2014

Introduction

When it comes to energy, the situation between Ontario and Québec is currently very complementary in so far as Ontario faces certain challenges in generating electricity whereas Québec is faced with surplus electricity that also raises major challenges. That said, one's problem could very well represent the other's solution and vice versa.

Accordingly, this report proposes increasing Québec's electricity exports to Ontario; this would allow Québec to significantly increase its export revenues compared to the prices it obtains on the American market and considerably reduce its surplus electricity. Moreover, such an agreement would give Ontario access to cheaper electricity compared to its much costlier domestic generation of electricity from nuclear energy.

Signing a long-term export contract with the Province of Ontario could generate economic benefits of \$1.2 billion per year or more for the two provinces combined. If these economic benefits were shared on an equal basis, Hydro-Québec's annual profits would rise by \$600 million or more per year. In turn, the Government of Québec, Hydro-Québec's sole shareholder, could use these additional profits to finance its social services, invest in infrastructure such as public transit (as Ontario does) or pay down its debt.

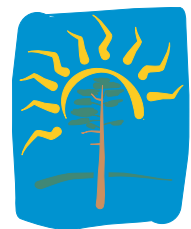
Hydro-Québec's export supplies and prices

In 2012, Hydro-Québec exported 35.3 billion kWh of electricity. Most of these export sales were to the U.S., primarily pursuant to short-term contracts.¹

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* annual price of Hydro-Québec's electricity exports fell by more than 50% between 2008 and 2012.²

Increasing exports would allow Quebec to significantly increase export revenues and give Ontario access to cheaper electricity.

équiterre
www.equiterre.org



Ontario Clean Air Alliance
Research
www.cleanairalliance.org

According to the Commission sur les enjeux énergétiques du Québec, Hydro-Québec can only get top dollar for the electricity it exports during 300 peak-demand hours each year. During this window, transmission constraints mean the utility can export a maximum of 10 billion kWh, or less than one-third of its current total export supply. Its remaining export power is sold at an average of just 3¢ per kWh.³

The Commission is forecasting that Hydro-Québec will be forced to export increasing amounts of low-cost power over the next eight years as its supplies grow but export prices remain flat. It projects a 50% increase in exports that will be sold at the low off-peak price between now and 2022.

Table 1: Forecast of Hydro-Québec’s electricity exports at 3¢ per kWh⁴

2014	2016	2018	2020	2022
20.1 billion kWh	25.4 billion kWh	28.5 billion kWh	30.5 billion kWh	31.1 billion kWh

Since the refurbishment of the Darlington reactors will cost at least 2.8 times more than the price of Hydro-Québec’s exports to the U.S., increasing the East-West electricity trade could have huge economic spinoffs for both Québec and Ontario.

Ontario’s Darlington nuclear refurbishment project

Ontario’s Darlington Nuclear Station will reach the end of its useful life in 2020. Today, the Government of Ontario is proposing a refurbishment of Darlington’s aging nuclear reactors to extend their useful lives until 2050. The refurbishment of Darlington’s first reactor is scheduled to begin in the fourth quarter of 2016.

Ontario Power Generation is forecasting that the Darlington refurbishment project will come out to a cost of 8.3¢ per kWh.⁵

Potential gains from the East-West electricity trade

Since the refurbishment of the Darlington reactors will cost *at least* 2.8 times more than the price of Hydro-Québec’s exports to the U.S., increasing the East-West electricity trade could have huge economic spinoffs for both Québec and Ontario.

Currently, the electricity transfer capacity between Québec and Ontario is 2,788 MW.⁶ Therefore, with its current infrastructure, Québec has the capacity to export 24.4 billion kWh of electricity per year to Ontario. However, in 2013, Québec’s net electricity exports to Ontario were only 2 billion kWh.⁷

In 2013, the Darlington Nuclear Station generated a total output of 25.1 billion kWh.⁸ Based on this figure, electricity exports from Québec to Ontario would represent 97% of Darlington’s annual output.

Therefore the total net benefit to Canada of cancelling the Darlington Re-Build Project and increasing east to west electricity trade between Quebec and Ontario could be more than \$1.2 billion per year.⁹ If this net benefit were split equally between Ontario and Québec, each province would come out ahead by at least \$600 million per year. Over a 20-year contract term, this would translate into \$12 billion of additional benefits for each province.

This sharing of benefits could be achieved if Ontario entered into a long-term contract with Québec to purchase the latter’s electricity at a rate of 5.7¢ per kWh. For Ontario, this rate is *at least* 30% less than the cost of generating electricity at a refurbished Darlington Nuclear Station. For Québec, it represents almost double the rate it is currently charging for the bulk of the electricity it exports.

In 2010, Hydro-Québec signed a 26-year export contract with Vermont at an initial price of 5.8¢ per kWh. After the first year, the price is calculated according to a formula based on regional electricity prices and the movement in general of price levels observed across the U.S. economy, subject to a dampening clause that limits year-over-year price variations.¹⁰

Each province would come out ahead by at least \$600 million per year. Over a 20-year contract term, this would translate into \$12 billion of additional benefits for each province.

Québec and Ontario have everything to gain from working together

According to Ontario’s Long-Term Energy Plan (December 2013), Ontario will import water power from Quebec if it can meet the province’s electricity needs at a lower cost than Ontario generation:

“[...] an import arrangement with a neighbour to guarantee the firm delivery of clean power could offer a cost-effective alternative to building domestic supply.

Contracted energy imports can provide value if their price is less than domestic generation [...]

Ontario will...pursue contractual arrangements for firm imports where cost effective and well matched to Ontario’s electricity needs.”¹¹

Special thanks to the Echo Foundation and the Taylor Irwin Family Foundation at the Toronto Community Foundation for their financial support.

In other words, if Québec offers Ontario a long-term electricity supply contract at a fair market price, Ontario can simply not afford to refuse the offer.

Endnotes

- 1 Hydro-Québec, *Annual Report 2012*, page 99.
- 2 Commission sur les enjeux énergétiques du Québec, *Maîtriser notre avenir énergétique*, February 2, 2014, p. 177.
- 3 *Maîtriser notre avenir énergétique*, p. 177, 181.
- 4 *Maîtriser notre avenir énergétique*, p. 183.
- 5 Ontario Energy Board Docket No. EB-2013-0321, Ex. L, Tab 4.7, Schedule 6 ED-005.
- 6 Ontario Energy Board Docket No. EB-2008-0272, Ex. I, Tab 5, Schedule 6.
- 7 Email from Karla Mann, Market Relations Associate, Independent Electricity System Operator (January 22, 2014) to Jack Gibbons, Ontario Clean Air Alliance.
- 8 Ontario Energy Board Docket No. EB-2013-0321, Ex. L, Tab 4.7, Schedule 6 ED-007.
- 9 24.4 billion kWh x (8.3 cents per kWh – 3 cents per kWh).
- 10 Hydro-Québec, “Vermont and Québec reach new energy agreement” (press release – August 12, 2010) and State of Vermont, Public Service Board Docket No. 7670, *Order entered: 4/15/2011*, p. 11.
- 11 Ontario Ministry of Energy, *Achieving Balance: Ontario’s Long-Term Energy Plan* (December 2013), p. 45.



Équiterre
Centre for Sustainable Development
50 Ste-Catherine St. West, Suite 340
Montréal (Québec) H2X 3V4
(514) 522-2000
Toll-free : 1 877 272-6656
Fax : (514) 522-1227
info@equiterre.org
www.equiterre.org



Ontario Clean Air Alliance Research
160 John Street, Suite 300
Toronto, Ontario, M5V 2E5
(416) 260-2080
Fax : (416) 598-9520
info@cleanairalliance.org
www.cleanairalliance.org