

Darlington Re-Build vs. Home Energy Retrofits

Which delivers real value for money?

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OCT 30, 2012

Darlington Re-Build

Cost

The Ontario Clean Air Alliance has estimated that the cost of re-building the Darlington Nuclear Station could be up to \$35 billion.¹

According to Hydro Quebec, the cost of re-building the Gentilly-2 nuclear reactor would be \$6.3 billion including decommissioning and the long-term storage of nuclear wastes.² The Darlington Nuclear Station is 5.2 times larger than Gentilly-2 (3,524 MW vs. 675 MW). Therefore, based on Hydro Quebec's per-MW estimates, the cost of the Darlington Re-Build would be \$33 billion.

Energy Output

- In 2011 Darlington produced 29 TWh of electricity.³
- 1 TWh of electricity has 3.6 million gigajoules (GJ) of energy.
- 29 TWh x 3.6 million GJ = 104,400,000 GJ total energy output.

Home Energy Retrofits

According to Enerlife Consulting Inc.:

- the cost of retrofitting 1 million homes would be \$7 billion (\$7,000 per home)
- the electricity savings would be 3.8 TWh per year; and
- the natural gas savings would be 840,000,000 cubic metres per year.⁴

Electricity Savings

3.8 TWh x 3.6 million GJ/TWh = 13,680,000 GJ

Natural Gas Savings

840 million cubic metres x 37.69 MJ/cubic metre = 31,659,600 GJ

Total Savings

The total annual energy savings from retrofits of one million homes would be 45,339,600 GJ (13,680,000 + 31,659,600) and the average annual energy saving per home would be 45.3396 GJ (total divided by one million).

Home energy retrofits can deliver the same energy as Darlington at half the cost



The Ontario government should help citizens to keep energy costs down by ordering utilities to develop a comprehensive, coordinated home energy retrofit program



This means that the total number of homes that must be retrofitted to save as much energy as Darlington produces per year is 2,302,623 (104,400,000 GJ per year/45.3396 GJ per year).

Cost of Retrofitting 2,302,623 Homes

2,302,623 x \$7,000/home = \$16,118,361,000

NRCan’s ecoENERGY Retrofit Program

Since April 2007 Natural Resources Canada (NRCan) has provided financial incentives for the retrofitting of 441,823 homes in Ontario. The average home saved 42.3 GJ per year and received an average financial incentive of \$1,238.⁵ Unfortunately, NRCan cancelled this very popular program effective March 2012.

A New Ontario Home Energy Retrofit Program

The Government of Ontario should direct Ontario’s electric and gas utilities to establish new home energy retrofit programs to help consumers reduce their energy bills, create jobs across Ontario, reduce the outflow of Ontario dollars to western Canada and the United States to purchase natural gas, and to reduce our greenhouse gas emissions. Key features of the utilities’ home energy retrofit programs should be:

- low-interest rate on-bill financing;
- the use of NRCan’s EnerGuide Rating System to forecast the energy savings of the proposed conservation measures and to establish the proper sizing for equipment (e.g., furnaces, air-conditioners), as well as for verification of the actual savings after installation; and
- a list of reliable professional contractors who can perform the home energy retrofits.

Additional Options to Replace Darlington

In addition to home energy retrofits, there are many other low-cost energy efficiency and supply-side options to replace the output of the Darlington Nuclear Station.

In 2011, the average cost of the Ontario Power Authority’s (OPA) residential, commercial and industrial energy efficiency programs was 3 cents per kWh.⁶ In this context, it is important to note that the cost of large-volume commercial and industrial energy savings measures are typically lower than those for residential programs. For example, the OPA’s financial incentives for industrial energy savings measures can be as low as 2.3 cents per kWh.⁷

The costs of various electricity supply options are shown below.

Ontario Electricity Supply Options: A Cost Comparison⁸

Water Power from Quebec	Natural Gas-Fired Combined Heat & Power	Wind Power	Darlington Re-Build Project
5.8 cents per kWh	6 cents per kWh	11.5 cents per kWh	19 – 37 cents per kWh

Where does the NDP stand on this issue?

During the 2011 provincial election the NDP firmly opposed the construction of new nuclear reactors, but merely committed to carefully assess the need for the proposed Darlington Re-Build project. Specifically, according to the NDP's environmental platform:

“Nuclear energy creates environmental problems that last thousands of years. It's a part of electricity supply we can't simply ignore but we can say **we will not build new nuclear reactors and we will carefully assess the need for further refurbishments.**”⁹

According to the NDP's energy critic, MPP Peter Tabuns, Ontario should not proceed with the Darlington Re-Build until “a business case has been made.”

Tabuns states: “We've also been clear, we do not believe Ontario should proceed with the refurbishment of existing nuclear reactors until a business case has been made and conservation and clean alternatives have been considered.”¹⁰

In the past, Ontario's nuclear industry has always made “business cases” for their projects by low-balling their cost estimates. However, every nuclear project in Ontario's history have gone massively over-budget — on average by 2.5 times.¹¹ And the cost overruns have been passed on to the province's consumers and taxpayers. On the other hand, renewable and natural gas-fired power producers are not allowed to pass their cost overruns on to consumers or taxpayers.

Unfortunately, while the NDP is sitting on the fence, Ontario Power Generation is proceeding with the Darlington Re-Build project. Specifically, it has awarded SNC-Lavalin a \$600 million contract to develop a plan to re-build Darlington.¹² This doesn't make sense since there are much lower cost and safer options to keep our lights on.

We need Andrea Horwath and the NDP to be our champions at Queen's Park. Specifically, we need them to make their support for the 2013 provincial budget conditional on the cancellation of the wasteful Darlington Re-Build project.

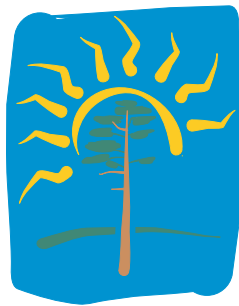
**The Ontario NDP
needs to take a
clear stand on this
issue and stand up
for consumers**



Endnotes

- 1 Ontario Clean Air Alliance Research Inc., *The Darlington Re-Build Consumer Protection Plan*, (September 23, 2010), page 2.
- 2 Hydro Quebec, *La Centrale Nucleaire Gentilly-2*, (October 2, 2012).
- 3 Ontario Power Generation, *Annual Information Form For The Year Ended December 31, 2011*, page 11.
- 4 Email from Marion Fraser on behalf of Enerlife Consulting Inc. (September 24, 2012).
- 5 Office of Energy Efficiency, Natural Resources Canada, *Monthly Statistics on EcoEnergy Retrofit Program*, (August 31, 2012).
- 6 Colin Andersen, CEO, Ontario Power Authority, Remarks to the Toronto Board of Trade, "Powering Toronto's Electricity Future", (October 25, 2012), page 10.
- 7 Ontario Clean Air Alliance Research Inc., *The Darlington Re-Build Consumer Protection Plan*, (September 23, 2010), page 2.
- 8 Ontario Clean Air Alliance Research Inc., *Energizing the Drummond Report: How Ontario can reap multi-billion dollar electricity savings*, (March 22, 2012), page 7.
- 9 Ontario NDP, *Affordable Green Choices*, (2011), page 8.
- 10 Peter Tabuns, MPP, "NDP clear on nuclear plants", Letter to Editor, *Toronto Star*, (October 21, 2012).
- 11 *The Darlington Re-Build Consumer Protection Plan*, Appendix A.
- 12 SNC-Lavalin, *Press Release*, "SNC-Lavalin/Aecon Awarded Major Contract At Darlington Nuclear Station", (March 1, 2012).

Thanks to the Taylor Irwin Family Fund at the Toronto Community Foundation for their generous financial support



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