Ontario's Energy Advantages: "Three Birds in the Hand" for Transportation

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The 2017 Annual Greenhouse Gas Progress Report from the Environmental Commissioner of Ontario (ECO) acknowledged the significant role that the province's nuclear fleet had played over the last decade reducing electricity sector Greenhouse Gas (GHG) emissions. The ECO's Report noted that further reductions from this sector are "nearly exhausted" and that today, "transportation is Ontario's largest source of climate-changing GHG emissions".

Ontario has a home-based cost-effective way to significantly reduce transportation emissions and grow our economy. It requires continued, strategic investment in Ontario's low-carbon nuclear, renewable hydroelectric and abundant biomass resources.

With the resulting clean, affordable, domestically produced electricity and alternative fuels, Ontario can power zero-emission electric vehicles (EVs) and public transit systems like the GO network, and produce hydrogen for fuel cells, new biofuels and job-creating innovations. Alternatively, Ontario would continue to spend billions of dollars annually for imported, carbon-emitting natural gas and oil.

Nuclear is Ontario's safe and reliable baseload workhorse and has provided over 60 percent of our virtually smog and carbon-emission free electricity over the last five years. The Darlington refurbishment project will, over the next 30 years, remove the equivalent of two million cars a year worth of carbon emissions from Ontario's roadways. Between 2017 and 2064, Bruce Power's reactor life-extension project will avoid between $12 to $63 billion in carbon costs that ratepayers would have to pay if fossil fuels replaced this output. And, this low-cost nuclear electricity will continue to help keep energy costs down for consumers, businesses and industries.

Ontario's nuclear production also fits well with recharging EVs in low-cost, off-peak times. According to Plug'n Drive, hydro and nuclear electricity could reduce the average Canadian driver's GHG emissions by up to 90 percent. Additionally, nuclear generation can be used to produce "clean" hydrogen for fuel-cells. Hydrogen is also compatible with combustion turbines and reciprocating engines. Nuclear generated hydrogen requires no fossil fuels, reduces GHG emissions and other smog-causing pollutants and is well suited for large-scale production.

While Ontario has already developed its commercially-viable hydroelectric potential, hydropower provided more than 20 percent of the province's lowest cost, low-carbon electricity over the past five years. Ontario continues to upgrade its existing hydropower capacity while adding new capacity where feasible. These hydro resources provide intermittent and peak electricity and pumped storage capacity to the grid. Linking these capabilities to the electrification of Ontario's transportation sector would offer even more environmental and economic benefits.

The province's vast, renewable, carbon-neutral forestry and agricultural biomass wastes and purpose-grown crops represent our third energy advantage. To date, Ontario has: converted the Atikokan Generation Station (GS) — now North America's largest 100% biomass facility; supported advanced biomass pellets at Thunder Bay GS; added supply chain infrastructure; and created biomass research and development clusters around the province.

Besides reducing emissions, local businesses, Indigenous, Metis and host communities have shared substantial economic benefits. Expanding support for these projects and building bio-refineries in Ontario that produce lower carbon biofuels means more clean energy for transportation and a world-leading bio-economy.

Some see emerging technologies like distributed energy resources – wind, solar and storage configured into microgrids, as a better solution. Linking the batteries in EVs and the fuel cells in hydrogen cars are part of the vision. The perceived benefits include consumers becoming prosumers, greater choice and resiliency, GHG reductions and the dollars stay local. But there are unanswered questions about the final costs to ratepayers, impacts on the viability of publically-owned electricity facilities; and in the end, who pays for it all?

Ontario's energy advantages deliver environmental and economic benefits across the province. Ontario's publically-owned nuclear and hydroelectric generation and biomass resources are our most cost-effective way of: powering zero-emission transportation; securing clean base, intermittent and peak electricity; ensuring long-term energy security; and, further reducing GHG emissions while creating economic wealth.

The old saying still rings true today; "A bird in the hand is worth two in the bush". Ontario has three – nuclear, hydropower and biomass.