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TAKING A DEEP BREATH ON WIND POWER

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The current Ontario government's headlong rush into massive subsidization of various forms of renewable energy, including wind power and solar energy, is likely to reveal the law of unintended consequences from these precipitous policies unless we take a deep breath and calmly and rigorously re-evaluate these policies before committing billions more dollars from consumers and taxpayers to them.

Such a re-evaluation would sharply focus on three key factors: a) the costs of renewable energy; b) its contributions to reducing CO₂ (greenhouse gas) emissions; and c) its contributions to creating jobs in the province. Much of the current government's renewable energy focus has been on the promotion of industrial wind turbine-generated electricity, and hence I focus on these three factors as they relate to industrial wind power.

a) Economic Effects

First, as to the cost of wind-generated electricity, the feed-in tariff for on-shore wind turbines in Ontario provided for under the *Green Energy Act* is 13.5 cents per kWh (and higher for smaller projects), which is more than twice prevailing rates for electricity on the spot market in Ontario (less than 6 cents per kWh). Solar power qualifies for an 80 cents per kWh feed-in tariff. These cost increases will be fed through to industrial, commercial, and residential consumers through various additional charges on their electricity bills. In addition, further expenditures are required in order to enhance and extend the transmission grid to accommodate these projects. A recent study by London Economics Consultancy, "Examining the Potential Costs of the *Ontario Green Energy Act 2009* (April 30, 2009), estimates that the higher costs of

green power will add hundreds of dollars to average electricity bills of households throughout Ontario. A recent article in the *Globe and Mail*, “The High Cost of Green Power,” January 8, 2010, quotes Adam White, President of the Association of Major Power Consumers of Ontario, as stating: “The situation is not sustainable because it will leave companies paying higher rates than competitors in other jurisdictions.” Toronto energy lawyer, Peter Murphy, is quoted as stating: “The government is sitting on a political time bomb.” Recent studies of wind power in Denmark,¹ Germany,² and the UK,³ reach similar conclusion about the impacts of renewable energy on electricity costs in these three jurisdictions. The Ontario government’s estimate of an increase in electricity costs per year from its renewable policies of 1 percent a year seems to lack any justification or credibility.

b) Environmental Effects

The contributions of industrial wind power to reducing CO₂ (greenhouse gas) emissions, which might be thought to justify the additional cost of renewable energy, are in fact at best marginal. Most wind turbines run at only about 25 percent of nameplate capacity, so that generating any substantial amount of electricity from wind power requires massive numbers of wind turbines. In addition, because of their intermittency and unpredictability (like solar power), they require the availability of back-up generation, especially for peak-load capacity, which has entailed in Denmark, Germany, the UK, and now Ontario the construction of additional fossil fuel plants (typically natural gas plants) to provide reliability. This dramatically reduces the net contributions of wind power to CO₂ abatement, which come at an extremely high cost relative to

¹ Centre for Policy Studies (CEPOS), *Wind Energy: The Case of Denmark*, Copenhagen, Denmark, September 2009.

² Christoph M. Schmidt, *Economic Impacts from the Promotion of Energies: The German Experience* (RWI, Essen, Germany, 2009).

³ John Etherington, *The Wind Farm Scam: An Ecologist’s Evaluation* (Stacey International, 2009), chapter 4.

other abatement strategies (such as real-time pricing of electricity).⁴ In the case of base load electricity, most of this is provided in Ontario by carbon-clean hydro and nuclear power so that, to the extent that wind power is used to provide base load electricity, it simply displaces lower cost hydro and nuclear power with no effects on CO2 emissions (or results in exports of surplus power, often at give-away prices).

In October 2007, the Ontario Power Authority (OPA) – the government’s own agency, tasked with planning Ontario’s power system and now entering into long-term contracts with renewable energy producers – published its Integrated Power System Plan, where it analyzed a “high wind power” scenario for the province, and concluded: “Since wind generation has an effective capacity of 20 percent compared to 73 percent for hydroelectric generation, additional generation capacity with better load-following characteristics would need to be installed. This needed capacity will likely have to be obtained by installing additional gas fired generation. Thus, in addition to incurring further capital costs for the gas generation installation, higher gas usage would be expected to make up for the reduced amount of renewable energy from wind compared to that from hydroelectric generation or this alternative. Therefore, this alternative would result in higher greenhouse gas emissions.” The OPA concluded: “Wind and solar power will never be more than a niche supplier of power in Ontario.”

What did the OPA see as the better alternative? Renewable hydro power sites in northern Ontario (which it identified). The OPA stated: “The hydroelectric generation developments included in the plan are cost effective compared to developing additional wind generation; this comparison includes the cost of transmission reinforcements. In conclusion, development of major hydroelectric generation north of Sudbury, with major reinforcement of the transmission

⁴ Donald Dewees, “The Price Isn’t Right: The Need for Reform in Consumer Electricity Pricing,” C.D. Howe Institute Backgrounder, No. 124, January 2010.

north of Sudbury, is the preferred alternative compared to developing additional renewable generation in southern Ontario and other parts of northern Ontario.”

This begs the obvious question, what has changed in two years? Beyond these sites in northern Ontario, in the medium to longer term there is enough northern Canadian hydro power in Manitoba, Quebec and Labrador to satisfy Ontario’s needs for decades. If Boston and New England can depend on northern Canadian hydro power, why not Toronto? Moreover, prior demand projections for electricity need to be revised downwards to reflect not only the current economic recession (demand was down more than 6% in 2009 over 2008), but the long-term contraction in a number of Ontario’s electricity-intensive heavy manufacturing industries, such as steel and automobile manufacturing.

c) Employment Effects

The potential contributions of renewable energy to the creation of jobs in the province require a heavy dose of skepticism. While the government has claimed that it plans to create 50,000 new green jobs in the province over the coming years, the additional burdens on industrial, commercial, and household consumers from higher electricity costs associated with renewable energy will kill existing jobs. Recent studies in Denmark and Germany find that very few net new jobs have been created as a result of renewable energy policies, and in the case of Denmark, have cost between US \$90,000 to US \$140,000 per job per year in public subsidies, and in the case of Germany, up to US \$240,000 per job per year. According to a column by Randall Denley in the Ottawa Citizen of January 24, 2010, the new manufacturing jobs entailed in the massive Samsung renewable project recently announced by the Ontario government will cost \$300,000 each in public subsidies.

In an SNL Financial news wire report of October 23, 2009, the Ontario Minister of Natural Resources was reported as stating that the agency had temporarily stopped accepting applications for proposed wind energy projects because it had already received 500 such applications and needed to make sure that it had appropriate processes in place before taking any more. Obviously, the massive public subsidies being offered by the Ontario government to the renewable energy sector, especially industrial wind turbines, have provoked a massive corporate feeding frenzy, but corporate enthusiasm for subsidized wind power should not be confused with the longer-term public interest. On all three of the critical factors reviewed above, wind power attracts a failing grade. Beyond these three factors, localized impacts on flora and fauna and on the character of some of Ontario's most beautiful rural communities, potentially adverse health effects on local residents from persistent exposure to low intensity turbine noise, potentially adverse impacts on local property values, and an environmental review process which the Ontario Environmental Commissioner describes as "broken,"⁵ render renewable energy policy, at least as currently conceived by the Ontario government, one of the least compelling public policy options in the challenging economic environment in which the province finds itself now and for the foreseeable future.

Picking technological winners in fields such as this, and then picking winners within classes of technology (such as Samsung) are fraught with the risk of costly errors. A far better policy orientation would be first to price all sources of electricity so as to reflect environmental costs and let consumers respond accordingly, and then to subsidize breakthrough R and D in all sectors that are significant sources of carbon emissions. As Dr. Jan Carr, former CEO of the OPA from 2005 to 2008, puts it in a recent article:⁶

⁵ Gord Miller, Annual Report, 2007-2008.

⁶ Jan Carr, "A Rational Framework for Electricity Policy," (2010) *Journal of Policy Engagement* 8.

The recent rush to “green” Ontario’s electricity system has produced a largely *ad hoc* approach to the selection and investment in power generation technologies that will unnecessarily increase the cost of electricity with far-reaching economic and social effects... Pricing carbon would have the advantage of continuing a century of economically rational development of the electricity system as an essential underpinning of modern society. To do other than proceed on an economic basis is to risk massive economic distortions... The alternative process of picking winners and losers in renewable energy technologies, based on perceptions and public opinion polls, puts us all at considerable risk.”

Before mortgaging its long-term future by awarding hundreds more 20-year fixed-price contracts to wind developers, the province of Ontario urgently needs an independent, objective, expert investigation (perhaps by the Auditor-General) of the prospective economic, environmental, and employment effects of wind power and other renewable energy policies in the province and alternatives thereto.