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Critique of "Economic Impact of the Greenwich Wind Farm" by Crupi Consulting Group for the Ontario Ministry of the Environment

> "Just because the authors say they use "rigorous methodologies widely accepted and recommended by the economic literature" does not make it so." *Dr. Ross McKitrick*

Lake Superior Action Research Conservation was recently made aware of a report prepared for The Ontario Ministry of Natural Resources by the Crupi Consulting Group titled "Economic Impact of the Greenwich Wind Farm" dated June 2012. The report can be found at:
http://www.mnr.gov.on.ca/stdprodconsume/groups/lr/@mnr/@renewable/documents/document/stdprod_098657.pdf

Upon reading the report we were struck by the lack of consideration of the costs associated with the project and by the extremely optimistic assertions for the Greenwich Wind Farm's positive impact on the Regional and Provincial economy and job creation, given local experience with the Prince Wind Farm, the numerous peer-reviewed economic studies which have found just the opposite effect from Wind Farm construction and the reports coming out of Europe where the consequences of Wind Farm development are more advanced than here in Ontario.

One exaggerated benefit is the claim for the $31.8 million dollar potential value of "carbon credits" over the 20 year contract with the OPA, made on page 17 of the report, paragraph 4.4: "Carbon Credit Generated by the Project".

The Greenwich project has a nameplate capacity of 99MW (Mega Watts). Over the 20 year predicted life of the project, which recent studies have shown to be overly optimistic by 8 to 10 years (*The Performance of Wind Farms in the United Kingdom and Denmark by Gordon Hughes, Renewable Energy Foundation, 2012*) and assuming Wind Farm output remained at the average capacity factor of 27.5% for Wind Farms in Ontario since 2006 - the Gordon Hughes study found Wind Farm output declined by 37.5% by age 10 and 54.17% by age 15 - the Wind Farm should produce 99 x 0.275 x 24 x 365.25 x 20 = 4,773,087 MWh (Mega Watt hours) of electricity. The Ontario grid's current CO2 intensity is approximately 130.5Kg/MWh, based on the extant generating mix and data shown on the IESO's website.

The predicted electricity from the Greenwich Wind Farm would thus save us 4,773,087 x 130.5 = 622,887,853.5 Kg of CO2 or 622,888 tonnes of CO2 which at $15/tonne is only $9,343,318 over 20 years or $467,166/year, if it displaced 100% of the equivalent fossil fuel generation.

The only way to arrive at the figure of $31.8 million over 20 years is to assume that the electricity generated by the Greenwich project will displace 100% of fossil fuel generation only **and** that the CO2 intensity saved is 444.16Kg/MWh, which is completely contrary to the facts, given that the IESO has complained about Wind generated electricity regularly displacing base load Nuclear and Hydro generated electricity (*Integrating Renewable Generation, SE-91 Presentation of Design Principles, IESO, December 16, 2010*). Furthermore, we know it is impossible to completely displace fossil fuel generation, given the need for spinning reserve to backup wind generation's unpredictable variability (*Inhaber, 2011 and Bentek, 2011*).

With Ontario closing its Coal generating plants within the next 2 years, the CO2 intensity of our fossil fuel generation will never rise above 550Kg/MWh, the average intensity of Natural Gas generation. Currently Wind generation represents approximately 5% of the electricity on our grid. That number will increase to10% within the next few years. The equation given by Inhaber 2011 for the approximate CO2 savings from using Wind generated electricity on the grid is: Q = 200/(1+e^cx) where Q is the percent CO2 saved, c = 0.2, a constant, x is the percent wind penetration on the grid and e is Euler's number, a constant equal to 2.71828. Applying this equation to the Ontario grid means that the greatest approximate CO2 savings to be expected from Wind displacing Natural Gas alone would be about 28.34% or 131.12Kg/MWh, not the 444.16Kg/MWh inferred from the report. At Wind's current 5% grid penetration the theoretical maximum CO2 intensity displaced is still only 295.83Kg/MWh.

Therefore, notwithstanding our very generous assumptions, the $31.8 million claimed value of carbon credits is completely unfounded and impossible to realize - should Alberta companies even want to buy these carbon credits.

Wishing an expert opinion we contacted Dr. Ross McKitrick, Professor of Economics and CME Fellow in Sustainable Commerce, who obligingly reviewed it. Attached is his analysis, which confirms our opinion of the worth and relevance of this study produced for The Ontario Ministry of Natural Resources. His final comment was:

"Taking into account the tragic harm this project will do to the priceless North Superior landscape and ecology, you and your colleagues are right to oppose any such projects as strongly as you possibly can. I wish you every success."

We wish to thank Dr. McKitrick for his time and invaluable help.

We are disappointed that public money should have been spent on such a poor report. We would be even more disappointed were public policies to be informed by and based on such a flawed analysis, as the waste of public money would be orders of magnitude greater.

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"Not being an alternative themselves, it is quite simply spurious to ask for an alternative to replace them." —
Dominic Mette, Secretary-General, European Platform Against Windfarms