

8850, Second Concession Rd.,
Stella, ON K0H 2S0

Oct. 20th, 2010,

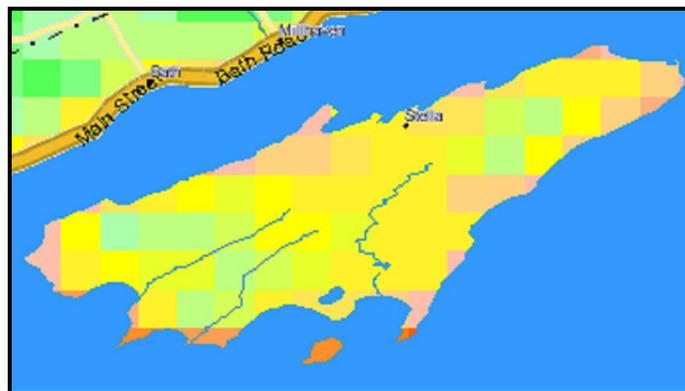
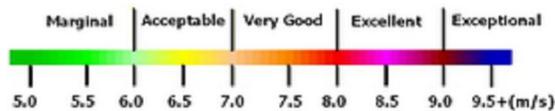
Mr. Colin Anderson,
Ontario Power Authority,
120, Adelaide St. W., Suite 1600,
Toronto, ON M5H 1T1

Dear Mr. Anderson,

I am writing concerning the proposed wind energy project for Amherst Island that Windlectric has submitted to OPA for approval under the renewable energy FIT program. First, I have no sense of exactly what has been proposed because these companies hold their cards very close to their chests. Nevertheless, there was an earlier proposal for up to 200 MW of wind power and Algonquin Power, one of the developers behind Windlectric, mentions plans for projects in eastern Ontario of up to 80 MW in its most recent company report. I would like to explain why a project on Amherst Island is a very bad idea.

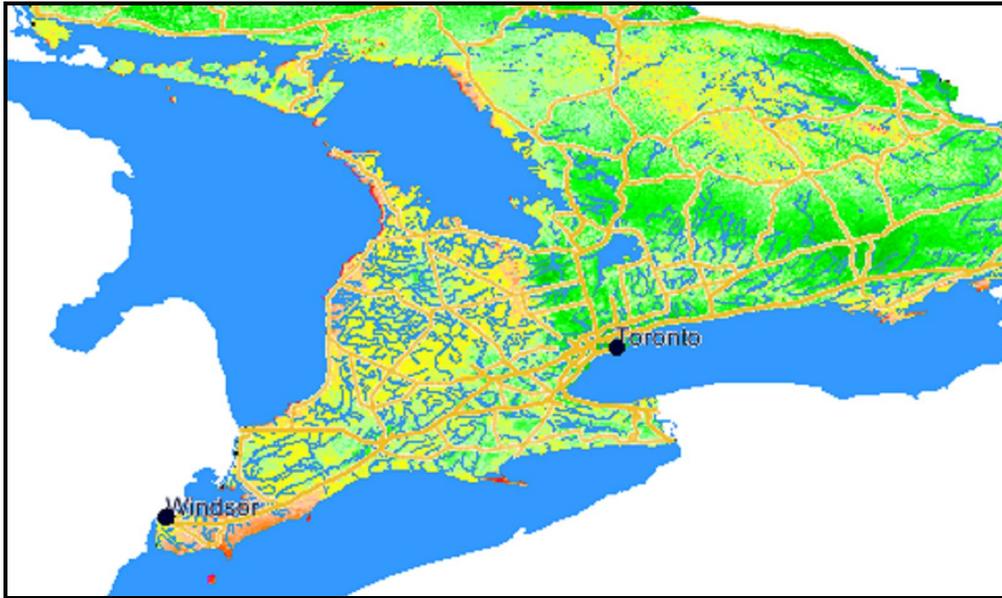
Marginal Wind Resource

According to the Ministry of Natural Resources, Amherst Island has only acceptable wind speed at 80 metres (6.5 m/s on average). The small regions on the map* that correspond to 7.5 m/s wind speed will be excluded as either zoned *shoreline residential* or isolated by land that is zoned *environmentally protected*.



A cursory glance at the Ontario Wind Atlas (see page 2) shows that there are large areas of Ontario, many with low population density and closer to large urban centres, with a similar wind speed average. There are also large areas with wind speed averages in the “very good” classification of 7.5 m/s on average. As you will know, the

power derived from a turbine varies as the third power of the wind speed. The third power of the ratio of 7.5 m/s to 6.5 m/s is 1.5 or a 50% premium. Put another way, a wind project on Amherst Island will have an annual average capacity factor of less than 20% compared with the 26% average for the eight projects in operation in Ontario for the full year July 2009 to June 2010. See the attached report based upon hourly measurements provided by IESO. These eight projects are all in “very good” classification zones.



Even compared to neighbouring regions at the eastern end of Lake Ontario, the wind resource on Amherst Island is poor:



I would also like to point out that, in a report commissioned by the OPA from Helimax to investigate potential sites for wind energy, Amherst Island did not make the list of 60 sites. That is, it did not even rate “least favoured”. The ranking factors used by Helimax were: a) wind speed; b) megawatt capacity density; c) road access; d) social factors.

Windlectric does have its own wind speed map based upon measurement from 3 test towers and upper atmosphere modeling. It shows somewhat higher wind speeds than does the Ontario Wind Atlas. Nevertheless the Ontario Wind Atlas will give a better picture of comparative wind speeds across Ontario and hence comparative capacity factors.

Project Area

Amherst Island does not have the land area for a large project. Windlectric has announced only that the earlier proposal was to be for up to 199 MW of nameplate power. The total area of Amherst Island is 16,500 acres. Of this, I estimate that 3000 acres is zoned either environmentally protected or environmentally sensitive and 2500 acres is zoned either hamlet or shoreline residential. All of this was “off-limits” under the Official Plan Amendment of Loyalist Township. This will remain so under the REA process defined by the Green Energy Act. These numbers do not include the area of buffer zones around these four zone classifications. This leaves less than 11,000 acres. Of course, only part of these 11,000 acres will have been leased to Windlectric.

Algonquin Power has one operating wind energy project, at St. Leon in Manitoba. For that project the nameplate power is 99 MW and the area occupied is 23,000 acres. A similar density on Amherst Island would limit the project to considerably less than 50 MW, surely not viable given the expected low capacity factor and the expense of an underwater cable of 3 km or more, depending upon where Windlectric plans to locate the transformer sub-station.

It seems that not many are aware that wind turbines generate a considerable wake behind them. This means that there is a wind deficit as well as turbulence downwind of a turbine. The wind deficit takes away from the capacity factor of the downwind turbines and the excess turbulence contributes to wear and tear on those turbines. These things are well known as a result of government-sponsored work in Europe, notably in Denmark. This deficit, together with general hubris to rouse investors, is perhaps why the 24% capacity factor of the Wolfe Island facility is so much lower than the 34% that was being claimed by the developer even up to the six month mark of operation. It is clear that any project developed on Amherst Island would have to be high density and will suffer from wind deficit.

I have attended two talks by John Foster, a public relations representative for Transalta, on the design and construction of the Wolfe Island wind energy generating facility (One to the Probus Society of Kingston and one to the Kingston chapter of the IEEE). In both talks he mentioned that it was four times more difficult to build on an island. Granting some exaggeration, the point is well taken that the logistics are challenging when putting any infrastructure on an island. It would be worse for Amherst Island: the ferry is smaller and side-loading rather than end-loading for Wolfe Island; the roads are of a

lower standard; there is a spine down the island and I cannot imagine how turbine parts would be moved without major earth-moving; there are not the facilities for hosting work crews; there are many large lots that have not been optioned so that those that are form a haphazard patchwork.

Opposition to the Project.

There is on Amherst Island a large and organized opposition to a large wind energy project. The incorporated Association for the Protection of Amherst Island (APAI) has about 150 members and 175 people signed a petition to Loyalist Township to oppose a large project. This from a population of 450 year-round and perhaps up to 800 with summer cottagers. There are many others who do not want to declare themselves for business or family reasons or just so as not to upset neighbours. The opposition is not against wind energy as such; the reasons are the noise, flicker and safety problems associated with close proximity to wind turbines, the ensuing health problems, concern with ground-water problems, environmental concerns (Amherst Island is one of Canada's "Important Bird Areas") and destruction of a beautiful island. This association will oppose a large-scale wind energy project by every possible means.

Until recently, the options to lease land were held by Gaia Power and Canadian Hydro Developers (CHD) which had bought out the interest of Vector Power several years ago. CHD had stated in a letter to CPAI, the precursor to APAI, that if they were not wanted by the community they would develop elsewhere where they were welcome. CHD abandoned development on Amherst Island, presumably because of insufficient wind, because of a significant number of islanders who did not want them and because they realized that a proposal for Amherst Island would trigger a federal Cumulative Environmental Impact Assessment (CEIA) which could well sink the project. As I hope you are aware, CHD stated categorically that there would be "no development on Amherst Island in the foreseeable future" in order to forestall a CEIA for the Wolfe Island wind energy project. The quote is from the Wolfe Island Environmental Review Report.

Impact on Birds and Bats

As noted above, Amherst Island is an "Important Bird Area" (IBA). Rather than make my own remarks, I will quote from respected wildlife organizations; the two full letters and full motion from Ontario Nature are available by sending me an e-mail.

From **Nature Canada** (Mara Kerry, Director of Conservation) in a letter to you, dated Oct. 15th, 2008:

"Amherst Island is one such IBA. The entire island is internationally recognized as an IBA due to the high numbers of migrating Brant that are found there in the Spring. The variety of habitats on the island also make it a renowned site for a wide variety of other birds including shorebirds (such as Spring-migrating Dunlin), raptors (particularly significant are the island's wintering concentrations of hawks and owls), and land-birds (such as large concentrations of migrating swallows)."

And later:

"Wind energy (3 paragraphs to be inserted here)"

Letter from **Cataraqui Region Conservation Area** (Mara Shaw, Watershed Management Coordinator) to Mr. John Friberg, Ontario Ministry of Natural Resources, as a response to EBR 011-0907 (Offshore Wind Power: Consideration of Additional Areas to be Removed from Future Development); dated October 13th, 2010:

“Exclusion Specific to Eastern Lake Ontario

On the basis of the recommended exclusion zones above, CRCA staff recommend that the shoals of Eastern Lake Ontario be excluded from offshore wind turbine installation until further studies are conducted and only then if the results indicate that no negative impact would be incurred on the region’s natural heritage.

Staff notes that the proposed location of the Wolfe Island Shoals Wind Project is in the midst of three IBAs: Pigeon Island (ON041) which is globally significant for congregatory species and nationally significant for its colonial water-bird and sea-bird concentrations; Wolfe Island (ON037), which is globally significant for congregatory species and continentally significant for both congregatory species and waterfowl concentrations; and Amherst Island (ON062) which is globally and continentally significant for congregatory species. The impact of off-shore wind turbines on the significant populations of waterfowl and shorebirds, migrating and congregating birds has not been studied in inland waters. Initial results from the terrestrially-based Wolfe Island wind turbines indicate increased bird and bat mortality which has currently only reported results from its first year of monitoring.”

At its 2010 Annual General Meeting, **Ontario Nature** passed the following motion:

“Be it resolved that Ontario Nature – Federation of Ontario Naturalists 1) calls upon the government of Ontario to place a moratorium on wind farm development within 5 km of known significance to migrating birds and National Parks, Provincial Parks, and Important Bird Areas, until multi-year radar studies of bird migration are conducted at proposed development sites; and 2) urges the government to protect these sites from wind farm development if studies determine that they have significant bird migration concentrations, for example of over 100,000 birds in a season or are found to be situated within major migratory pathways.”

The motion was moved by Myrna Wood (Prince Edward County Field Naturalists) and seconded by Erwin Batalla (Kingston Field Naturalists).

You are probably aware of the very negative publicity attracted by the wind energy industry over the initial report on the bird and bat kill on Wolfe Island.

I urge the Ontario Power Authority to reject any wind energy proposal for Amherst Island before too many resources have been expended. In my opinion, this project is marginal at best, is environmentally distressing to people and wildlife, and the very strong opposition will at the least cause a long delay in the approval process and at best put a stop to it.

Yours sincerely,

John Harrison

harrisjp@physics.queensu.ca

encl: Capacity Factor of Ontario Wind Energy Generating Facilities (July 2009 to June 2010).

*All maps are for wind speed at a height of 80 metres, a typical turbine hub height.