

## MANITOULIN WIND NEWS

### WIND & TOURISM



By Rick Martin,  
Senior Manager, Business Development Wind Energy  
Project Manager, McLean's Mountain Wind Farm  
Northland Power Inc.

Do wind farms pose a threat to tourism, particularly in areas of natural beauty and open countryside? Has research been done on how tourism has been affected in areas where wind turbines have dotted the landscape in other parts of the world? Where tourism towns are now host to wind farms in Ontario, how have the local businesses and the municipalities responded? I have made a point of trying to connect with Manitoulin Tourism to listen to what people believe the impact wind turbines may or may not have on the Island's appeal as a tourist destination. I have read comments made by the Tourism Industry Association of Ontario (TIAO). The McLean's Mountain Wind Farm wants to be part of solutions in the shift to green energy, playing a role in the move and benefits of a green economy, but also in having a positive impact on Manitoulin's local economy.

In a letter to the Minister of Energy, Brad Duguid, the TIAO expressed the view of some of its members:

"Ontario is known for its natural beauty and pristine countryside. Many destinations throughout the province highlight this splendor in their marketing campaigns. This is particularly true when marketing internationally in Europe and Asia. Our association is very concerned that locating wind turbines within certain tourism regions will have a detrimental impact on the natural appeal of that area."

The Association, in that same letter, also said it "... supports the move of the Province to a more environmentally sustainable energy strategy."

So, is the concern about the tourism threat founded in reality? The fact is there are many examples in Ontario, Canada and around the world that demonstrate not only have the wind farms NOT affected tourism in a negative manner, but they have become tourist attractions.

Let's start with the research and the impact documented in places where turbines have been cited in landscapes with high scenic values for some time now. We took a look at Australia, Denmark and Scotland. "Down Under," the Australian Council of National Trusts developed methodologies for assessing landscape values and applying an evidence-based approach to studying the impact of wind turbines on tourism. The results? A 2003 survey quotes, "We have only seen positive local economic benefits resulting from the existence of the Codrington wind farm." The Codrington Wind Farm is located on the coast of south-western Victoria, Australia. When it opened, in 2001, it was Australia's largest wind farm and the first in the State of Victoria. It has 34 wind turbines, stretching in both directions, along the coastline. Codrington is a small town near Port Fairy between the larger towns Warrambool and Portland. Attractions in the area include beaches, dairy farms with local produce and now wind farm tours as a new "crowd-sourcer". According to the local tourism board, the wind farm is bringing in 50,000 additional tourists to the region every year.

The Codrington wind farm produces enough energy to supply more than 14,000 homes and Pacific Hydro proudly boasts it will abate the equivalent of up to 88,000 tonnes of carbon dioxide per year. The same has been true for wind farms in other parts of Australia, including the Albany Wind Farm in Western Australia (the municipality is working on a new wind discovery centre), the Windy Hill Wind Farm on the Atherton Tablelands of Queensland (over 30,000 visitors in its first three months) and the Chalicum Hills Wind Farm in Ararat, Victoria. Tour operator businesses have sprung up in each of these regions, wind farm tourism programs have been launched and in some of the towns new railway day tours have been offered with great success.

Research and tourism reports from Denmark and Scotland prove the Australian experience is not unique. Market and Opinion Research International has been conducting studies in Scotland to assess the impact of wind farms on tourism since 2002. The Scottish Renewables Forum released strong evidence wind farms do more to benefit than to harm tourism. Scotland seemed a good choice to consider, particularly to share impact results with those here on Manitoulin Island with concerns, because the tourism is reliant on its high landscape value and pristine beauty. Those surveyed indicated 48% came to the region for the scenery and only 10% came for festivals, fairs,

etc. Survey results showed 43% (2 in 5) said the wind turbines were a positive reason for visiting the area, a similar proportion (43%) said the turbines had no impact on their visit.

Denmark, the birthplace of the wind industry, is a good place to check on tourism impact studies because wind turbines have been installed since 1980. It has the highest density of wind turbines of any nation. Yet, tourism has increased in Denmark by some 50% since 1980. Now, that doesn't mean the increased number of visitors is solely because of the wind farms, but it does prove the wind turbines haven't hurt tourism in Denmark. Wind farms are used for marketing Denmark to certain parts of the European markets to attract those with interests in environmental issues and new clean technology. In Denmark, hotels, guest houses and camp sites often use local wind turbines to their advantage as green tourism promotion tools.

In Alberta, Canada local municipalities close to two wind farms near Pincher Creek and Fort Macleod can boast, "Four out of five visitors to the area inquire about our wind farms." In Prince Edward Island, the North Cape Wind Farm located near Tignish attracts up to 60,000 Visitors a year. So, the Canadian experience seems to match that of other jurisdictions.

In Ontario, one of the more controversial wind farms, in terms of resident concerns and local identification of tourism impact as an issue, is Wolfe Island, Kingston. Wolfe Island is the largest of the world-renowned Thousand Islands. Located where Lake Ontario ends and the St. Lawrence River begins its flow to the Atlantic, its beautiful sunrises, breath-taking sunsets and spectacular night-time skies are a big part of its charm and tourism appeal. There are 86 turbines on Wolfe Island. The combined power generated is 198 MW of electricity; enough to provide energy to 175,000 homes. Under a Summer Experience Program, managed by Kingston Employment and Youth Services, local high school students started the first one-hour walking tour program checking out the turbines, called Wolfe Island Wind Farm Tours. The tours are now run, for free, by the Kingston Rotary Club. The experience has been consistent; it's a BIG tourist attraction. Tourism to Wolfe Island and Kingston continues to be of major economic importance. Municipal tourism marketing plans for 2011 indicate tourism is increasing, not decreasing, with over 2.2 million visitors projected annually. The wind turbines appear NOT to have had a negative impact on Wolfe Island as a visitor destination.

Green tourism seems to have great appeal and from experience, validated by surveys and studies around the globe where large wind farms are operational, wind farms can and should be added to tourism plans and programs with walking tours and other ways to experience green energy.

As stories from tour operators quoted in local media articles from the regions mentioned indicate, "They're amazed by the structure. They're fascinated," according to Janine Caillier who gives tours of the 63 turbines at the wind farm in St. Leon's, Manitoba. She was quoted, "Their [tourist] eyes grow bigger every time you give a fact about the turbine."

Manitoulin Island can have the same positive experience growing tourism to the area for those alert to the green energy shift or just pleasantly surprising others for whom the turbines have no impact or interest. The consistent theme seems to be to use the wind farms to local advantage as a new attraction.

Like every thing else associated with the development of the McLean's Mountain Wind Farm, our position is to put issues and concerns on the table, explore and look at the facts and then work with local people and organizations to identify and develop benefits from the coming wind turbines and wind farms.

The project team is happy to meet with anyone on the Island involved in tourism promotion to help make McLean's Mountain Wind Farm a new attraction and perhaps a new business venture for those interested in being part of promotion activities.

If you have concerns about the wind farm or questions you'd liked answered factually and in an open, direct manner, please do not hesitate to contact the project office by phone, email or drop in. The contact information is included at the end of the column.

### NEXT WEEK: RENEWABLES PLACE IN THE GRID

McLean's Mountain Wind Farm  
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Northland Power, in business since 1967, develops and operates clean and green power generation projects, mainly in the provinces of Ontario, Quebec and Saskatchewan.

## MANITOULIN WIND NEWS

### RENEWABLES AND THE POWER GRID



By Rick Martin,  
 Senior Manager, Business Development Wind Energy  
 Project Manager, McLean's Mountain Wind Farm  
 Northland Power Inc.

How much solar and wind power is on the grid? How much will wind and solar grow within the renewable energy sector by 2030? How do wind and solar power compare in terms of efficiency, capacity and availability? All important questions, as both renewable power sources are under development on Manitoulin Island.

The recent Feed-In-Tariff (FIT) program, created under the Green Energy Act, got a lot of local residents excited about renewable energy microfit projects, especially solar. Feed-In-Tariff is a reference to a renewable energy program that pays the provider for power "fed-in" to the grid as it becomes available. As a result of the FIT program, we see several solar panels being erected on roof tops and backyards and farms. This is the same program that on a larger scale, allows McLean's Mountain Wind Farm to have a contract with the Ontario Power Authority (OPA).

There are differences between wind and solar power worth noting. Wind is currently less than 2% of electricity in the grid and by 2030 should grow to 10%. Solar is currently less than 1% and is expected to increase to 1.5% by 2030. All renewable energy sources – water, wind, solar and biomass – are currently at approximately 22% and by 2030 should be 33% of the province's electricity generation program.

Since we are now seeing both wind and solar projects under development on the Island, let's talk about these two sources of renewable energy.

The best way to do that is to compare both in terms of efficiency, capacity and availability factors.

What is efficiency factor? What is capacity factor and what is availability factor?

#### Efficiency Factor

Efficiency factor takes into consideration potential versus actual power generated. If a wind turbine is designed to be at full load at 12.5 metres per second wind speed, and it is only at 90% of its full load, then its efficiency is less than 100 percent. If a solar array (series of panels) is rated at 10KW per hour and the sun is directly shining on the panel at a 90 degree angle, on a clear day, and it is only producing 9.5 KW hours, then its efficiency factor is less than 100 percent; but still quite high. So, equipment is designed to run at over 85% efficiency factor. Those are pretty decent numbers.

#### Capacity Factor

Now, let's talk about capacity factor. Capacity factor is how much a unit will produce over a 12-month period compared to its designed capability. For instance, a wind turbine may be designed to produce 2.5 MW per hour, but considering that the wind is not always at a velocity to produce a full load and sometimes there is no wind, the capacity is greatly reduced over the year. This number has got everything to do with naturally available resources of the earth.

Because of this, we can't just put turbines wherever there is a vacant piece of land. We have to be where the resource is available. The capacity factor on wind turbines, with selectively chosen locations, with good wind resources, ranges between 28 and 32%. A 2.5 MW wind turbine will produce, on average, 2.5 MW x .30 Capacity Factor = 750 kW per hour, on average, over one year.

With solar, the challenge also becomes that they don't produce at night and there is dramatically less power produced on cloudy or rainy/snowy days. Another issue comes with the range of direct contact of the sun on the solar panel. Solar efficiency is affected by length of the day, amount of direct sun versus cloud cover, obstructions, temperature and technology. Obviously, solar farmers want a location with an early sunrise and a late sunset. They want a location without hills, houses or trees obstructing directions. There are regions within Ontario known to have higher solar output.

The capacity factor of stationary (fixed) solar panels is about 9-11%. 2.5 MW of stationary (fixed) solar panels will produce, on average, 2.5 MW x .10 Capacity Factor = 250 kW, on average, over one year. Some solar panels, as we see locally here, move with the sun. These are called tracked units. This is because they track the path of the sun throughout the day making direct contact at a 90 degree angle for longer periods. The capacity for the solar tracking units is therefore greater at a range of 11-15%. 2.5 MW of solar panels with tracking units will produce, on average, 2.5 MW x .15 Capacity Factor = 375 kW, on average, over one year. With the additional complexity of these units comes increased maintenance and service costs.

#### Availability Factor

Let's talk briefly about availability factor. It is basically the availability of the equipment when the resources are ready to produce power. With wind energy the question is: if the wind is blowing are my turbines ready to produce power? With solar power the question is: if the sun comes up on the horizon in the morning has my tracker got the panel ready to catch it, are the panels clean, are the connections tight, and is the unit ready to produce power? Your availability factor is the percentage of time that your unit is fully functional. This factor is directly linked to the quality of your maintenance and operations. This is expected to be quite high on both solar and wind. With wind, the expectation is greater than 95%.

#### Comparisons

There has been considerable discussion about wind farms taking up a lot of land and resulting in deforestation. Let's talk about the size of comparable land usage foot prints between wind and solar farms. Now, when we talk about comparisons we can talk about two different things:

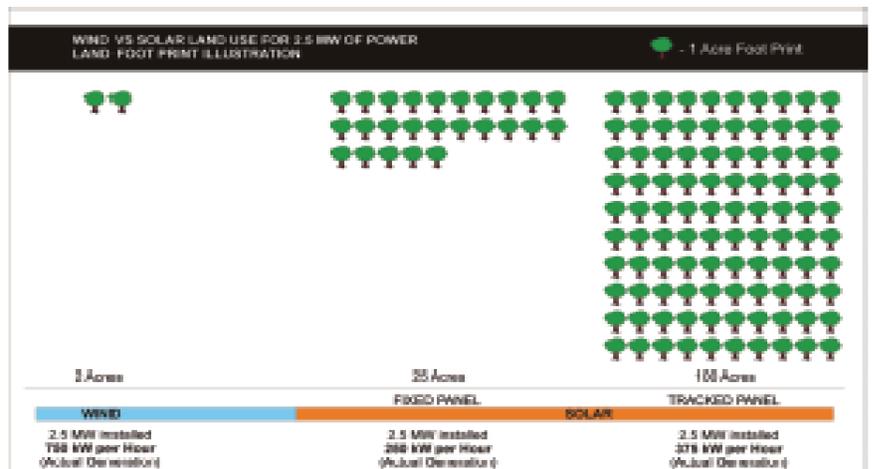
- (1.) We can talk about the amount of generation capability. For instance, one wind turbine can produce 2.5 MW. So, we can compare that to the footprint of 2.5 MW of solar.
- (2.) The other comparison would be based on the capacity factor of one wind turbine that is rated for 2.5 MW and actually produces 750 kW per hour, on a regular basis, and a solar farm

that can produce that same output of power based on its capacity factor. In this situation, we will use a 15% capacity factor for solar and 30% for wind.

**Comparison 1 – Land Foot Print** -- One wind turbine rated for 2.5 MW of power requires a site of approximately 1 acre of land and the adjoining access and service road; potentially an extra acre of land. This land can continue to be used for agricultural or traditional land uses (hunting, recreation, etc) once construction is complete. Typically, when doing a turbine layout, the sites are chosen in non-forested areas, if at all possible. So, we have roughly 2 acres of land per 2.5 MW of wind power producing, on average, 750 kW per hour, over a year.

A comparable solar farm with the same power rating of 2.5 MW per hour would require 25 acres in a stationary (fixed) solar panel set-up where the panels are located side-by-side. Except for isolated situations in Europe, where the acreage continues to be utilized as sheep pasture, traditionally solar farms are fenced off and the land no longer used for agricultural purposes. So roughly, 25 acres of land per 2.5 MW of stationary (fixed) solar producing, on average, 250 kW per hour, over a year.

We talked about a solar farm with a 15% capacity factor. This would require the panels to be tracking the sun. Since units that tilt to the east and then to the west each day have the potential to "shadow" each other they have to be spaced out at roughly 3-4 widths apart. Just a note, 2.5 MW of installed solar capacity is the same as 250 solar arrays like those we see in the microfit projects all around the Island. Since the solar panels have to be spread out further, the land foot print would be three to four times larger than the foot print of the fixed array solar farm or 75-100 acres. So, we have roughly 75-100 acres of land per 2.5 MW of tracked solar power producing on average, 375 kW per hour, over a year.



**Comparison 2 – Output to the Grid** -- A solar panel must have twice the power generation infrastructure to be equal to wind power because of its capacity factor. 5 MW of installed tracked solar generation or 500 microfit-sized solar arrays (10 kW) to produce the same amount of power to the grid as one 2.5 MW wind turbine. That makes a wind farm much more land-friendly with a far smaller development foot print.

Does this mean I am not supportive of solar energy? Absolutely not. I think solar has an important role in our power generation supply mix. Why? Solar has its place. It produces power during peak times when we need it most. It attaches to the power grid at remote locations easing the load on rural grid lines. It serves to stabilize the grid at its extremities during high peak usage time. It also provides unique opportunity to individuals who do not have a viable wind resource to generate revenue for their families through the green energy program.

The fact is the capacity to expand the contribution to the power grid from wind and solar is great. Most European countries are now expanding renewable energy commitments and greatly diminishing the reliance on nuclear power in light of the recent experience in Japan. Ontario could easily expand its renewable sources to 20% or even as high as 40% if that became the public policy goal.

Going green isn't sudden, isn't a fad and isn't folly. We have discussed the reasons the province is shifting to greener, cleaner energy in previous columns that dealt with climate change, our carbon footprints and the need to build a new, reliable power grid.

#### Impact of Renewables on the Grid

But, many ask, what is the impact of adding wind and solar energy to the provincial power grid?

The first impact is it proves we are ready, willing and able to harness renewable energy as it is available. The second impact is we eliminate or greatly reduce our reliance on fossil-burning sources such as coal. The savings to the Canadian economy from improved air quality from clean, renewable sources is considerable. Plus, should we decide to do so, as a province, we could reduce the reliance on nuclear.

I am not anti-nuclear, but as someone regularly facing citizen concerns about wind turbines, I marvel that no one is expressing concerns because we still have no solution for nuclear waste and plans are being considered to store spent nuclear rods in the Canadian Shield, not to mention regular tritium discharges into Ontario water systems.

Renewable energy sources support the grid, displace power produced from carbon-burning generation and can continue to be a strong back-up source of energy.

We see the way forward. It is green, clean and renewable.

If you have any concerns about this column, would like to learn more about the comparison between solar and wind generated power, or have other issues yet unaddressed, please do not hesitate to call, send an email or drop in to the project office. We are here to answer your questions factually and openly.

#### NEXT WEEK: BALANCING THE RENEWABLES SUPPLY

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### BALANCING THE RENEWABLES SUPPLY



By Rick Martin,  
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What happens to the power supply when the wind stops blowing and the sun isn't shining? How can we be sure of consistent power supply when relying on wind and solar energy? Do ratepayers have to pay for the grid system upgrades to accommodate renewable energy? With increasing amounts of renewable energy coming online to the provincial power grid, these questions deserve attention and answers.

Neither sun nor wind generated power alone will provide "base load" power. Renewable energy sources always function as part of the power supply mix, so whether the wind is not blowing at a particular place and time, or whether the sun is not shining in every location is not an issue for adding renewables to the power system. The power grid is not dependent on weather conditions.

A smart, decentralized grid is the precondition to a strong renewable energy supply in the power system. The design and administration of a strong, reliable and well-balanced power grid system is the job of the IESO, the Independent Electricity System Operator. Ontarians use more than 152 terawatt hours (a terawatt = 1 million MW) of electricity a year. Ensuring that there is enough energy to meet that demand is an on-going and highly complex process. As the reliability coordinator for Ontario's electricity system, the IESO is at the centre of it all.

Every five minutes, the IESO balances available supply with demand and directs the flow of electricity across the transmission system. At the same time, the IESO ensures that there is enough reserve energy available on short notice should there be a surge in demand, or an unexpected equipment failure at one of the generators or on the transmission system.

As we've discussed in other columns, Ontario is at the forefront of wind energy in Canada, with more than 1,200 MW of wind generation capacity operating in the province. As system operator, the IESO plays a fundamental role in helping bring wind projects into service and ensuring that Ontario's power system can effectively support increased levels of wind generation. The same holds true for its role in accommodating solar power.

The fact is the cleaner forms of energy are part of the IESO's Ontario Reliability Outlook transformation strategy and system performance mandate. The planning for renewable resources accommodation on the grid started back in 2009. The IESO developed key principles for its Renewable Integration Initiative around forecasting, visibility and dispatch.

#### Forecasting

IESO centralized wind forecasting helps address the variable nature of wind energy, allowing the IESO to understand the periods of time in which greater levels of wind generation will be available. Equipped with this knowledge, the IESO can better manage the province's electricity resources used to meet Ontario's needs. The IESO uses specialized forecasting tools and processes, including centralized forecasting for all wind and solar generators directly connected to the IESO-Controlled Grid (ICG) and for all wind and solar generators with an installed capacity of 5MW or greater connected to a distribution system. When integrated into the IESO system and its market operations, it permits hourly, day-ahead, probabilistic and ramp event forecasting. The centralized forecasting has been a prominent development in the power industry over the past several years and part of the North American Electric Reliability system which includes Ontario.

#### Visibility

All wind, solar and other variable generated power are required by the IESO to provide static plant data, the physical layout of each facility and details on the turbines and solar panels. This is part of the IESO system "visibility" principle. The system administrator knows every wind turbine hub location throughout the province, every turbine elevation, every wind farm's meteorological tower location and elevation, the type of turbine, the manufacturer's power curve and all details related to speed, temperature tolerance and all-weather operations information. The quality of these data gives the IESO forecasters all the necessary inputs for reliable wind power production. There is an art and science to power grid supply balance. It will be visible to the public too. The IESO will publish its forecasts publicly and to all market participants identifying periods of large or small amounts of expected wind and solar availability. For more information on this stakeholder initiative or to be sent an alert when the forecasting is available online, just email them at [stakeholder.engagement@ieso.ca](mailto:stakeholder.engagement@ieso.ca). This transparency is also part of the system operator's efforts to showcase and improve its forecasting.

#### Dispatch

The goal for the electricity system is reliable dispatch of power. The integration of renewable energy resources in an economic dispatch of power means knowing how and when to produce energy at the lowest cost while balancing operational issues such as ramp needs and surplus base load generation situations.

What is a wind "ramp" need? The term wind ramp refers to the measures energy system operators must take when winds change rapidly, causing a sudden increase or decrease in wind power generated by turbines. When winds pick up, the amount of power generated by the wind turbines increases rapidly and can cause excess power to be injected into the generation system. Being able to better anticipate changes in wind energy output (forecasting and visibility) in short time horizons improves the reliability of power generation during dispatch intervals and reduces operational costs.

This may seem like a long-winded way of explaining how and why we can be sure of consistent power supply while relying on wind and solar energy in the power supply mix. But, I thought it might be helpful to provide a full explanation.

The other thing to be aware of is when there are availability issues, the IESO can then pull from hydroelectric sources with peaking capability, natural gas generation, peaker plants and, of course, the nuclear base load (over 50% of the power supply source). It doesn't have to draw from coal-fired generation as has been quoted. The same is also now true in the reverse. Should the nuclear plants need to be closed down or powered off, the IESO has a strong source of other energy sources to fill the electricity generation needs with reliable forecasting and dispatching capacity.

But, what about the cost?

Reducing the province's dependency on fossil-based power generation sources and eliminating coal-produced power is not just noble, it makes long-term economic sense. In a previous column, we have discussed the myth and the inaccuracy of statements that the addition of renewable energy sources to the power grid is causing electricity prices to skyrocket. Not true. You can see from a Globe & Mail article, in its Report On Business section of July 2011, a recent Pembina Institute study is cited. In the report, the Calgary-based think tank states that the contribution to higher power prices from renewables will be minimal over the next 15 years, and that over the long term adding more green power to the mix could actually trim electricity costs. The article is available online at <http://m.theglobeandmail.com/report-on-business/industry-news/energy-and-resources/impact-of-renewables-on-higher-power-costs-minimal-report-says/article2087782/?service=mobile>

There are also untrue comments that ratepayers are footing the cost for the grid system upgrades to accommodate renewable energy.

Let me share with you what the wind farm developer must pay to offset system expenses to include wind energy in a reliable, balanced supply mix.

When a developer is looking at any wind project initially, they not only look at land features, but also grid features. What's the electricity highway to get any power generated exported? On distribution voltages of less than 50,000 volts a connection impact assessment or CIA is conducted. If the connection is going to be higher than 50,000 volts, a System Impact Assessment (SIA) is required. It is then followed up by a Customer Impact Assessment. These studies help Hydro One, the IESO and the development company to anticipate the impact of any proposed changes or requirements.

A simple example would be if you have an electrical circuit in your home that has a couple of appliances already using it – say you have the toaster plugged in and someone wants to connect something new like a coffee maker -- wouldn't you like to know in advance whether you might overload the circuit and trip your circuit breaker? That's the kind of thing we're talking about. The corrective solution might be as simple as replacing the circuit breaker with a higher ampage, or, you might have to change the whole wire and replace the whole circuit because you are drawing too much power.

Now, back to the full-scale power development situation we were exploring. When wind power generation comes onto the electricity system, those governing the grid in Ontario have to look at the impacts and suggest required changes. The cost of such changes is transferred to the developer and NOT to the ratepayer. The developer assumes the cost of related power infrastructure required to connect to the grid.

Ontario is continuing to make great strides in building a robust wind energy sector, strong solar and green energy additions to the power grid. The renewable energy is supported by 2,400 MW of new natural gas resources and transmission upgrading and renewing nuclear base load capacity. Balancing the renewable supply in this power mix is being well-managed by the IESO. Renewable energy generation is on the increase throughout North America adding new flexibility, efficiency and even cost benefits.

If you need more information on how renewable energy is adding value and not just environmental benefits to the power grid system, please don't hesitate to contact the project office by phone, email or dropping by for an open review of the facts. We're here to provide solid information about wind energy and to dispel myths and untruths.

#### NEXT WEEK: PROJECT UPDATE

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## MANITOULIN WIND NEWS

### PROJECT UPDATE: COMMUNICATIONS



By Rick Martin,  
 Senior Manager, Business Development Wind Energy  
 Project Manager, McLean's Mountain Wind Farm  
 Northland Power Inc.

Since December 1, 2010, a regular column has appeared in the Manitoulin Expositor. It is written and paid for by the McLean's Mountain Wind Farm project to be sure residents have access to facts, references and expert sources, verified by the project team.

Why a regular column? How can island residents find facts about wind energy to help base their own opinions? Why is most of the information available of wind and renewable energy the subject of controversy?

We at the McLean's Mountain Wind Farm project office made a decision. We would reach out and engage the community as much as possible and not rely solely on required public information centre meetings to communicate information about the project and about wind power. A regular column seemed a good way to connect with you. The Expositor is "the" community newspaper and you can read it at your convenience.

Like any issue that attracts controversy, there will be people who line up early in the pro or anti camps, leaving the rest of us to look for facts to form solid opinions. We have tried to fill that need for facts. The provincial government review process is rigorous. The judicial system has been dealing with some of the matters such as health impact and setback limits from turbines. There has been media coverage and the decisions of the courts have been public.

The shift to green, renewable energy sources was initially welcomed. It meant getting off coal, having alternatives to increasing nuclear power and reducing dependency on fossil-based energy sources. It also provided a way to deal with climate change. The move to renewable energy also came with an effort to increase conservation and to build a smart grid system. Wind and solar power is not "new" in other countries. It does, however, represent change for Ontario, Canada and throughout most of North America. Change brings controversy.

We have had many positive comments about the quality and readability of the columns and our communications. If you have missed any of these columns or would like a copy of a past column, please contact us at the project office. We have an archive prepared.

If there is a topic you'd like us to address, please let us know. Let's keep communications open.

December 15, 2010

#### WIND ENERGY IS CLEAN ENERGY

Why wind energy is coming to Manitoulin Island.

December 22, 2010

#### TURBINES ON MANITOULIN LANDSCAPE

Why and how wind turbines will bring green energy to Ontario and to Manitoulin Island.

January 12, 2011

#### WIND SOUNDS

Facts about wind turbine sounds.

January 19, 2011

#### WIND & WILDLIFE

Proactive approach to wind and wildlife impact on Manitoulin Island.

January 26, 2011

#### PROONENT RESPONSIBILITIES

Three levels of government requirements and monitoring.

February 2, 2011

#### IMPACT ON ADJACENT LANDS

Green Energy Act guidelines, setbacks and MPAC studies.

February 9, 2011

#### TURBINE LOCATIONS

Turbine location process and use of Wind Rose.

February 16, 2011

#### THE RENEWABLE ENERGY ACT

Renewable Energy Approvals process and requirements charted.

February 23, 2011

#### FIRST NATIONS PARTNERSHIP

50-50 Partnership with Mniidoo Mnisig Power, McLean's Mountain Wind Farm and other energy ventures explained.

March 2, 2011

#### WE'VE HEARD YOU: NEW LOOK

Impact of community input on five turbine removals.

March 9, 2011

#### LOCAL IMPACT DURING CONSTRUCTION

Survey team begins road routes for construction using GPS and LIDAR.

March 16, 2011

#### COMMUNITY INVOLVEMENT

Positive role of engaged farmers and landowners.

March 23, 2011

#### TRUE COST OF RENEWABLE ENERGY

Addressing myths related to expense of renewables.

March 30, 2011

#### ECONOMICS OF WIND

Wind energy proving competitive when factoring in benefits and long-term needs.

April 6, 2011

#### CHANGING WIND TECHNOLOGY

History of wind energy and technological advances in blades and towers.

April 13, 2011

#### WIND FARM PROJECT UP DATE

Status report on development plans.

April 20, 2011

#### ROLE OF PUBLIC MEETINGS

Influence you can bring to a project.

April 27, 2011

#### EFFECT OF TALLER TURBINES

Reducing number of turbines and wind sound.

May 4, 2011

#### AGRICULTURAL LAND & TURBINES

Wind is compatible with agricultural land use.

May 11, 2011

#### LET'S TALK ABOUT CARBON FOOTPRINTS

From tomatoes to autos, our choices impact climate change.

May 18, 2011

#### MYTH WIND POWER RAISING ELECTRICITY RATES

Renewable energy - not reason rates going up.

May 25, 2011

#### HOW THE ELECTRICAL GRID WORKS

How power is delivered today plus Smart Grid plans for future.

June 1, 2011

#### COME JOIN US AT THE MANITOULIN TRADE FAIR

Wind Farm booths to host interactive displays and lots of information.

June 8, 2011

#### YOUTH AND WIND POWER SHIFT

Manitoulin Island youth can join global support for wind energy.

June 15, 2011

#### EIGHT YEARS OF DIALOGUE

Consultation based on extensive two-way dialogue proof of real community engagement.

June 22, 2011

#### RENEWABLES AND FIRST NATIONS

Aboriginal energy programs and FN leadership embrace renewables.

June 29, 2011

#### COMMUNITY WIND FACTS & FICTION

If it doesn't sound correct, it may not be true. Get facts from project office.

July 6, 2011

#### WIND & TOURISM

Promote the wind farm and they will come. Experience in other jurisdictions.

July 13, 2011

#### RENEWABLES AND THE POWER GRID

Role of wind and solar in grid diversity and stability.

July 20, 2011

#### BALANCING THE RENEWABLES SUPPLY

How the IESO-Controlled Grid forecasts and integrates wind and solar energy.

July 27, 2011

#### PROJECT UPDATE: COMMUNICATIONS

Access to archive of Manitoulin Wind News columns.

### NEXT WEEK: PROJECT UPDATE: TECHNICAL ISSUES

McLean's Mountain Wind Farm  
 Northland Power Inc.  
 13 Worthington Street, Little Current Phone: 705-368-0303



Northland Power, in business since 1967, develops and operates clean and green power generation projects, mainly in the provinces of Ontario, Quebec and Saskatchewan.

**MANITOULIN WIND NEWS**

**PROJECT UPDATE: TECHNICAL**



By Rick Martin,  
 Senior Manager, Business Development Wind Energy  
 Project Manager, McLean's Mountain Wind Farm  
 Northland Power Inc.

There seems to be a lot of activity with work crews, equipment and surveyors up around the proposed McLean's Mountain Wind Farm site. What's happening? Has the project study on wetlands impact been completed? Why is there a new project billboard? We continue to get good questions from those of you taking the time to drop by the project office, call or email. Thank you for being so engaged in the McLean's Mountain Wind Farm project. It is an exciting time.

What most regular observers of the wind farm project will have noticed by now is there is a fluid nature to project development. That's because nature is our teacher and dictates much of the variables and project requirements on an on-going basis. What do I mean? As we've discussed in the previous columns, wind power is all about harnessing nature's forces to positively impact the delivery of electricity. It is about green and clean energy.

This means we take all the local environmental factors seriously. As a consequence, you will see experts in all elements of the project out, on a regular basis, conducting studies, taking samples, rechecking data collected and ensuring the project footprint is respectful of the Island's natural features. They do seem to appear in waves of activities as we continue to work to meet Ministry of the Environment (MOE), Ministry of Tourism and Culture (MTC), Ministry of Natural Resources (MNR) and other government requirements.

The surveyors are marking road width and road boundaries ensuring we do not encroach on others' properties. We've had teams of biologists out and we took the extra caution of ensuring a wetlands expert came out from Parry Sound to oversee what is called the delineation of the wetlands. As those of you involved in nature conservancy, wetlands preservation and other environmental stewardship activities will appreciate, while vegetation is used as a primary marker of wetlands borders most of the time, it can be a challenge to be sure that is an effective delineation.

Previously, wetlands were identified using MNR maps. This can be problematic because they can be outdated and often not current with weather and nature impacts. We wanted to be sure we got this right. In fact, I can share that as a result of the work undertaken for this wind farm project, it is not an exaggeration to say we have helped identify more completely the Perch Lake wetlands complex.

We have completed and submitted a Natural Heritage Assessment and are awaiting its review and approval. What does it contain? We are required to assess and evaluate natural features within 120 metres of the wind project. We are required to conduct and submit an Environmental Impact Study for any natural features deemed significant. The Ministry of the Environment establishes what is "significant." The McLean's Mountain Wind Farm has completed Environmental Impact Studies for wildlife habitats and for wetlands. The government reviews the studies from a local and regional impact perspective. The government will post them on the MOE website under the Environmental Bill of Rights (EBR) section for public access. The EBR makes it possible for the public to participate in government decision-making on matters that could affect the environment.

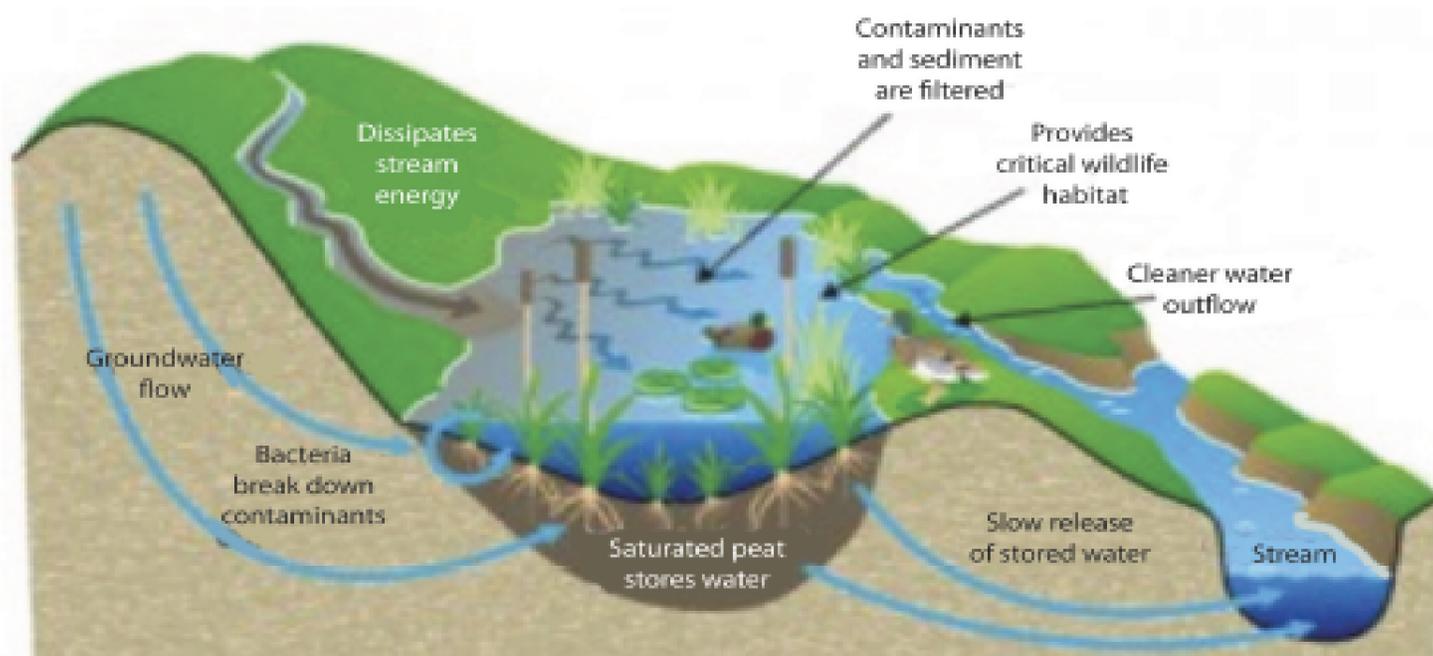
Residents should know that under government regulations we are not allowed to develop any aspect of the project that could encroach on any wetlands feature. I can confirm that we have ensured that the wind farm project is outside any wetlands feature. There is no contact or encroachment.

The other thing I should share is that additional field work is underway as we go beyond the first-level environmental review of all affected lands and now start a further assessment of each parcel of land pertaining to the full layout of the wind farm project. There is considerable diligence being applied to this second overlay of review.

Now, why the new billboard? We wanted to be sure that a new sign was up in time for the Haweater Weekend to proudly share the updated project map, to boldly confirm the reduction of turbines from the original layout to 24, to showcase the selection of the new GE turbine and to make sure it all appeared clean and fresh for Island visitors.

There is always a concern for residents that wind farm developers may do the bare minimum to meet government guidelines, requirements and regulations. That is not the case with this proponent and this wind farm project. We are proud to be meeting or surpassing requirements and would be pleased to talk with you if you have any doubts or concerns about these undertakings.

Manitoulin Island is a wonderful place and we plan to help keep it that way.



**HOW WETLANDS WORK**

**NEXT WEEK: WILDLIFE HABITATS**

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**MANITOULIN WIND NEWS**

**PROJECT UPDATE: WILDLIFE HABITATS**



By Rick Martin,  
 Senior Manager, Business Development Wind Energy  
 Project Manager, McLean's Mountain Wind Farm  
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Biodiverse is one term used to describe the natural bounty of Manitoulin Island.

Scientists on both sides of the Canada-U.S. border have studied the Great Lakes Islands\*\* and have ranked Manitoulin Island as the most biodiverse. Some of you may wonder if in developing the McLean's Mountain Wind Farm the Northland Power-Mnidoow Minsing Partnership will be respectful of the Island's natural environment? How does the McLean's Mountain Wind Farm project accommodate significant wildlife habitats and protect and preserve this beauty? Will the wind farm project affect the habitat or the species associated with the designated North Shore Important Bird Area (IBA) and be sure not to degrade or harm the amphibian breeding habitat and turtle hibernation areas? Since wind power is about clean and green energy, residents can be assured the project is committed to protecting and preserving the Island's environmental sensitivities.

I should share with you that I can make that last statement without hesitation because environmental stewardship is one of the founding principles of Northland Power. In fact, it was a founding purpose of the company. In 1989, Northland Power started with its first co-generation plant in Northern Ontario. A huge pile of sawdust had become a source of environmental concern. The pile would become saturated by rain or snow resulting in harmful leachates creating an environmental hazard. The Ministry of the Environment (MOE) had become concerned and was carefully monitoring the situation. The company stepped in and cleaned up the hazard, utilizing the wood waste in a productive way. A business was born and a commitment to the highest standards of environmentally-sound practices entrenched in the corporate culture. This was a fact that helped make the wind power project and the company's approach compatible with our First Nations partners.

Studies have been underway since 2004 mapping, monitoring, identifying and tracking the wildlife of the Island. There are many years and volumes of studies and reports that most people would find overwhelming unless they had a scientific, professional or technical expertise. The list is significant and includes song bird studies, highland bird studies, studies of wetland birds, raptors, owls, bats as well as every waterway and the aquatic life within each. Different scientists have been involved with different areas of specialization to be sure we don't accidentally harm or degrade forage or breeding areas.

While ORNITHOLOGY is the study of birds, HERPETOLOGY is the study of both reptiles and amphibians. I didn't know this before. I have received a real education during this process. I have been up and out around 4:30 a.m. with an Ornithologist in the greenbush listening intently and observing the counting of bird calls, monitoring the birds during different times and different seasons including foraging and breeding cycles. This isn't done because we don't care or are just paying lip-service to wildlife impact. We do care and we are doing this the right way for the right reasons and that is to preserve and protect the Island's beauty and creatures.

The McLean's Mountain Wind Farm will NOT negatively impact the habitat or the species associated with this North Shore IBA. We know the bay and the inlet areas along the North Shore within this IBA are important moulting and staging areas for the Red-Necked Grebe and other open water bird species such as the Common Loon, the Horned Grebe and small numbers Long-Tailed Ducks. We

also know the limits of the IBA, the overlaps and the fact the critical areas for this wildlife are the open waters. This project will avoid those areas.

In addition to the information captured and documented previously about the wildlife and used to identify wildlife habitats on Manitoulin Island, we can also avoid potential degradation of amphibian breeding habitats and turtle hibernation areas.

Avoidance is a great tool to combat risk of harm. It's like a good offence being a good defence. By knowing and understanding the documented locations of wildlife, migration pathways, staging areas and roosting and feeding areas we can avoid them. I am not going to say that all these facts and all these efforts and all these studies mean we have all the answers and everything covered. There are always risks because we are only human. But, we are prepared and we are committed to protection and preservation. Mitigation strategies and plans will be developed and included with the REA (Renewable Energy Approval) program.



During construction of the wind farm we will be constantly monitoring and watching for potential impacts on the wildlife habitats, our team of experts will be monitoring and reporting on all phases of the development to file with the MOE and the Ministry of Natural Resources (MNR) will also be monitoring and reporting. These reports will be public. For three years post-construction, bird and bat monitoring will also be fully implemented.

If on one hand people applaud the MNR for co-funding the Great Lakes Islands Project\*\* and working with nature conservancy on biodiversity, then people should respect that the MNR will be vigilant in ensuring any development honours the principles and functions in a way that preserves and protects that which we have all worked to identify and document. It is a matter of public trust and not just environmental stewardship. When we look at the beauty of Manitoulin Island it's not through the eyes of a scientific study. It is something we treasure. It will continue to be treasured and to some extent sustainable thanks to clean and green energy like the wind power produced by McLean's Mountain Wind Farm.

Provocative posters may be used to alarm you, but years of studies by people with knowledge who are passionately committed to the environment, the wildlife and all species of flora and fauna are being conducted to prevent harm to wildlife habitats that we call home too.

If you have any questions about the wildlife habitat studies and mitigation strategies and plans or if you want to know about the MNR restrictions, guidelines and enforcement rules, give us a call, send an email or drop into the project office to sit down and get the facts first-hand. Threats to the Island's biodiversity also come from residential and cottage developments, tourism and recreation, marinas and resorts, building densities and increased access points for boats and other vehicles. We all have a role to play in stewardship.

\*\* Islands of Life: A Biodiversity and Conservation Atlas of the Great Lakes Islands

Prepared by: Bonnie L. Henson - Ontario Ministry of Natural Resources, Natural Heritage Information Centre. Daniel T. Kraus - Nature Conservancy of Canada, Ontario Region. Michael J. McMurtry - Ontario Ministry of Natural Resources, Natural Heritage Information Centre. David N. Ewert - The Nature Conservancy, Great Lakes Program. For a PDF copy of the report <http://nhic.mnr.gov.on.ca>

**NEXT WEEK: WIND AND GOVERNMENT**

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## MANITOULIN WIND NEWS

### PROJECT UPDATE: WIND AND GOVERNMENT



By Rick Martin,  
Senior Manager, Business Development Wind Energy  
Project Manager, McLean's Mountain Wind Farm  
Northland Power Inc.

Recently, many discussions about renewable energy seem to be about politics and the possible winds of change associated with the upcoming provincial election. I am being asked — if there is a change in government, will wind projects stop being built in Ontario? Are the Green Energy Act and the Renewable Energy legislation at risk of being revoked under a new government? Is renewable energy and wind power in particular only a political issue in Ontario? I know that governments around the world, all of different political stripes and views, are promoting wind power and renewable energy in their countries, states and cities. The shift to green energy is more about good public policy than political campaigns.

But with these questions posed, I did what anyone of you would do and hit the Internet to learn what various countries and their governments — including positions by their right, left and central political parties — might be doing on wind energy.

As in Canada, wind energy globally has become government-driven, developed by public policy processes, stated and supported by all political parties, to honour climate change commitments and priorities.

#### 20-20-20 in 2020

The aims of the European Union (EU) as a whole are by 2020 for emissions of greenhouse gases to be reduced by 20% compared to 1990 levels, for renewable energy to constitute at least 20% of energy consumption (and at least 10% in the transport sector), and for energy efficiency to be improved by at least 20%. This is part of the EU's so-called "20-20-20 in 2020". The commitments to develop renewable energy are spread throughout the 27 EU Member States. This includes renewable energy leaders such as Britain (United Kingdom), Denmark and Germany.

During last year's national British election, all political parties committed to a substantial proportion of the UK's energy coming from renewable sources.

Labour's "Future Fair for All" manifesto stated that political party would create 400,000 green collar jobs and move towards a "zero waste" Britain banning recyclable materials from landfill. They are committed to generating 15% of their energy from renewable sources by 2020 and say energy efficiency will be enhanced by a Smart Grid using new technologies.

The Conservatives (Tories) "Invitation to Join the Government of Britain" manifesto announced a political view that a low carbon economy would provide new opportunities for British businesses. They declared a plan to create a Green Investment Bank to support private sector capital financing for new green technology start-ups.

The Tories indicated they wanted to reform the Climate Change Levy to provide a floor price for carbon and increase environmental taxes. They — like Labour — also favoured the idea of increased wind energy and a Smart Grid.

The Liberal Democrats "Change that Works For You" manifesto outlined environmental initiatives including, as the Tories did, the idea of a Green Investment Infrastructure Bank to direct private fi-

nancing to green energy. The Liberal Democrats also set a 40% clean electricity target by 2020, rising to 100% by 2050. Three-quarters would come from offshore renewable sources and they rejected a new generation of nuclear power stations.

The Green Party wanted to remove reduce electricity demand and then drive a big shift to renewable energy according to its manifesto "Fair is Worth Fighting For". The Green Party also stated it would introduce "a massive program of direct Government investment in large scale wind and other renewable energy."

#### Political Parties in Europe United in Support of Wind

In Denmark, a *White Paper Danish Energy Policy 2025* was published in January 2007. It was followed by the *Energy Policy Agreement of 21 February 2008* between the Danish Government and ALL of its parliamentary parties with the exception of the Red-Green Alliance. This Agreement set out ambitious goals for the development of renewable energy. A specific goal was that renewable energy should cover at least 20% of Denmark's gross energy consumption in 2011.

The *Energy Policy Agreement of 21 February 2008* included initiatives to continue to promote the development of wind power. It was also decided that the Danish Minister for the Environment should conclude an agreement on behalf of the Danish Government with Local Government Denmark to facilitate local wind turbine planning. In April 2008, the Minister signed such an agreement with Local Government Denmark setting out the goals for local planning of onshore wind turbines. In connection with this, the Danish Ministry of the Environment's Wind Turbine Secretariat was established to assist the municipalities with their planning. Finally, the supporting parliamentary parties agreed that 400 MW of new offshore wind turbine capacity should be established and operational by the end of 2012.

The growth of renewable energy in Germany has often been cited as a model success story. The German government launched a comprehensive series of promotions for renewable energy in the early 1990s, which has since been supported by additional legislation and policy actions to increase renewable energy use. The point is the Government, supported by the political parties of all stripes, stood together to make the shift to green energy a reality. Are there still some with concerns? Probably. But, the point is the public policy process engaged members of all political parties in a joint legislative move to renewable energy leading with wind energy and keeping climate change targets.

#### Ontario A Green Energy Leader

Now that the public policy framework is in place, industry has invested, wind and solar projects are underway and the Ontario FIT (Feed-In-Tariff) program for confirmed wind and solar projects now includes a waiver of the Ontario Power Authority's (OPA) termination rights provided the developer can meet specified conditions, it would be unlikely any political party would be able to or want to stop the projects underway or to unwind the legislation in place (Green Energy Act, etc).

In Canada, the First Nations are a Nation with a government structure. How have they responded to wind energy? In the past few years, First Nations across Canada, including Ontario, have adopted the harnessing of wind energy as part of a greater economic development plan.

After consulting with Aboriginal communities in 2009, the Ontario Power Authority (OPA) launched the Aboriginal Energy Partnerships Program in April 2010. Many projects are underway throughout Ontario. On Manitoulin Island, the M'Chingess First Nation is among the first to develop its Mother Earth Renewable Energy (MERE) Wind Farm Project and, of course, there is the UCCMM partnership with McLean's Mountain Wind Farm.

Henvey Inlet First Nation, just north of Parry Sound, with its Niglo Power Corporation won a Feed-In-Tariff contract for a wind farm that will produce 300 MW of electricity, each year, providing power for about 70,000 homes. It will bring employment and future benefits to that community.

There are similar First Nation wind power projects under development from coast-to-coast. First Nations communities have embraced wind power projects as more than alternative energy, but as alternative economic development programs bringing prosperity and opportunity to their communities.

As we have discussed in previous columns, Ontario's Feed-In-Tariff Program is a guaranteed funding structure that combines stable prices and long-term contracts for energy generated using renewable resources. To date, 19 First Na-

tion-led or partnered renewable energy projects have been offered Feed-In-Tariff contracts with the OPA. First Nation governments have announced that wind energy is part of long-term economic sustainability plans for their people and is in harmony with Mother Earth.

The world is going green, the world is shifting to renewable energy sources and the greatest chunk of that shift is with wind energy. Why would Ontario go backwards?

Revoking or gutting the Green Energy Act and the Renewable Energy legislation would require one or more bills to be processed through the Ontario Legislature (First Reading, Second Reading, Committee Hearings, Third Reading, Royal Assent). A majority government could certainly do that, but it would take considerable time. The government would have to ignore or overcome significant opposition, not only from the opposition parties in the Legislature, but also by a wide range of stakeholder groups. Doing so would also put Ontario at odds with what governments are doing elsewhere in Canada and in the world and would probably be criticized by other jurisdictions and international organizations as a retrograde step.

#### The Politics of Wind

The Internet search that delivers all this proof of the global green energy shift and commitments to 20% wind energy development also has stories and examples of political tussles about wind farms. Is that only in Ontario? No. There are examples in many places, with North America seeming to be more susceptible. Some say that is because the shift to wind power is newer here than overseas. Others speculate it is because many of the European models of engagement have entire communities and not just select landowners benefitting from wind farm developer financial incentives. I only know directly about the McLean's Mountain Wind Farm experience and that a recent Ipsos Reid public opinion survey, done last month and released last week, showed 89% of Ontarians who responded — strongly or somewhat — supported the development of wind power.

"Most Ontarians — in every region of the province — support the production of wind energy in their region of the province," Ipsos Reid concluded. "In fact, support for wind energy production remains high, even when the geographic location mentioned is 'in your community.'"

Wind energy projects are part of rapidly growing green energy and clean technology industries in which Ontario is emerging as a nation-wide leader. These new industries are bringing manufacturing investment to a province that has lost hundreds of thousands of manufacturing jobs over the past decade. The current government predicts wind energy projects will create 50,000 jobs by the end of 2012. What would replace them in difficult economic times?

#### Public Policy Process

Good public policy is supposed to be beyond politics, delivered by a machinery of government focused on what is in the best interests of the majority of the population served. Political parties set political platforms during election campaigns to announce positions, stir up the electorate and to put issues on the public agenda. The move off coal and the decision to reduce dependency on fossil-based energy sources are public debates long past. The evolution of energy policies throughout the world are the result of sound public policy processes. As governments of all political stripes in Canada, as in other parts of the world, move towards collective, binding agreements to deal with climate change and honour things such as the Kyoto Accord, public policy not politics rules.

The Kyoto Protocol went into effect Feb. 16, 2005, 141 countries ratified it, including every major industrialized country — except the United States, Australia and Monaco. Two of the world's fastest growing polluters — India and China — have signed on. Canada was one of the first nations to sign the Accord. Despite political comments during an election, Prime Minister Stephen Harper has confirmed Canada will be a world leader in the fight against global warming and in the development of clean energy technology.

#### Municipal Government Non-Partisan

The McLean's Mountain Wind Farm is committed to meeting or exceeding government legislation, regulations and guidelines. That includes working with the local government. Politics are played out federally and provincially, but municipally, mayors and councillors serve resident interests and



### Nine in Ten (89%) Support the Production of Wind energy in Their Region of the Province



Q1. To what extent do you support or oppose the production of wind energy in your region of Ontario?  
Base: All respondents n=1,361

nor the partisan attacks or political games, more than one N.E.M.C. caucus has voted positively on various issues about this wind farm project based on facts not rhetoric.

The future is here on Manitoulin Island. It's not just our project. There are others, but not 600 turbines worth, now or ever.

#### Ontario & Canada Join Global Wind Push

Renewable energy policies continue to be the main driver behind renewable energy growth. By early 2011, at least 119 countries had some type of policy target or renewable support policy at the national level, more than doubled from 55 countries in early 2005. More than half of these countries are in the developing world.

At least 95 countries now have some type of public policy to support renewable power generation. Of all the public policies employed by governments, feed-in tariffs remain the most common.

Last year, investment reached a record \$211 billion in renewables which is about one-third more than the \$160 billion invested in 2009 and more than five times the amount invested in 2004.

Wind power is nature's solution to many environmental challenges and concerns. It should be beyond politics. You'll be the one who decides that for Ontario on October 6, 2011. For now, I keep my head down and get on with the job of honouring the contract awarded and the project milestones. The job includes keeping promises made to you by this project and the partnership delivering it.

Good public policy is like good business practices, they survive because they serve those for whom they were developed.

Yes, there are anti-wind groups threatening to bring down political candidates and a government led by a particular political party. That's not my business. That's not the business we are in. It may become the business of the voter, but for now, it remains business as usual as we build a reliable wind farm on Manitoulin Island.

Do you have any questions you think still need to be addressed, topics you'd like to have covered? Please take a moment and let me know by sending an email to me at [dick.martin@northlandpower.ca](mailto:dick.martin@northlandpower.ca)

I continue to extend an open invitation to anyone wanting to know more about the McLean's Mountain Wind Farm project and to discuss the processes we are following to meet government requirements. The project team is a phone call email away. We enjoy when some of you drop-in and give us the benefit of your time and questions.

## RENEWABLE ENERGY (RE) MAP

### RE-specific policies and RE targets 2011



Source: INTER-GOVERNMENTAL PANEL ON CLIMATE CHANGE  
Special Report on Renewable Energy  
and Energy Efficiency  
UNFCCC Climate Change Conference, Nov 2011

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## NEXT WEEK: WIND AND PUBLIC OPINION

# MANITOULIN WIND NEWS

## WIND AND PUBLIC OPINION

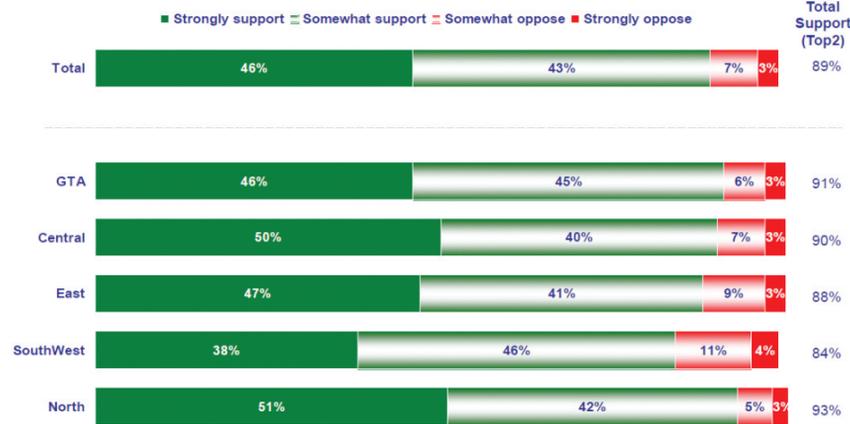


By Rick Martin,  
Senior Manager, Business Development Wind Energy  
Project Manager, McLean's Mountain Wind Farm  
Northland Power Inc.

When working on a development project the residents opposed to it step forward fairly quickly, but the large, silent majority is difficult to reach. Public meetings are also most likely to attract those who have already formed an opinion, usually a negative one and usually one without the benefit of all facts. So, government agencies or media organizations commission public opinion surveys to try to tap into the views of the larger group of the community affected. Some think public opinion polls are not reliable. Others believe they are an effective way to take a quick snapshot on how a population is feeling and thinking about an issue. Around the globe, in North America and in Ontario, recent public opinion polls show that the real measure of opposition to wind energy and wind farms is considerably less than media stories and opponents would have us believe.



### Nine in Ten (89%) Support the Production of Wind energy in Their Region of the Province



Q1. To what extent do you support or oppose the production of wind energy in your region of Ontario? Base: All respondents n=1,361

Why do most media stories seem focused on anti-wind forces when public opinion surveys are showing more positive public views towards wind energy? How many people are aware of the new shift to clean renewable energy? What are the main pro's and con's to public support and public opinion towards wind energy and wind farms?

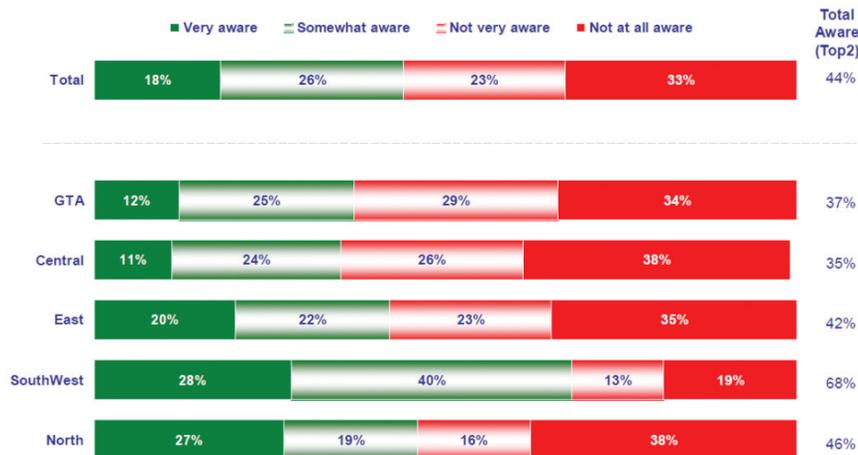
Understanding how the public forms an opinion is as interesting as how to measure that public opinion. A recent story about tapping into public opinion in Australia, where there is considerable shift to renewable energy, is worth sharing. The story appeared in the Energy Tribune. It is called, "The Real Public Opinion on Renewable Energy" and is written by an organizer for something called the "100% Renewable Energy" campaign. You can find it on the internet like I did at <http://www.abc.net.au/unleashed/2776594.html>. The focus of the article is how and why this group conducted over 14,000 face-to-face conversations with randomly-selected Australians from knocking on doors, meeting people in markets, community and sporting events. Why? Because media stories seemed to the group to be showing a deeply divided, polarized public response to wind development and they decided to strike up some direct conversations with real Australians to see if the stories were accurate.

The result of this significant undertaking was that some 91% of those interviewed thought the government should be implementing strong policy to support new jobs and investment in renewable energy. 86% of those interviewed thought Australia should adopt a plan to move to 100% renewable energy. A further 90% expressed the view that more Australians should be installing renewable energy to counter rising energy costs.

These findings didn't match Australian media coverage on anti-wind sentiment, nor with media stories linking rising electricity costs to renewable energy developments and despite Australian Energy Market Commission (AEMC) statements that the three main causes of rising prices were investment in ageing infrastructure, increasing costs of fossil-based energy sources and uncertainty about carbon pricing. None of these reasons involved support for renewable energy.



### Four in Ten (44%) are Aware of Wind Energy Developments in Their Area, Although Awareness is Higher in the Southwest



Q3. Are you aware of any wind energy developments (either proposed, in construction or already build) in your area? Base: All respondents n=1,361

Sound familiar? The other finding echoed something we have heard here on Manitoulin from residents who are not opposed to the wind farm developments. That was the sentiment, "Just get on with it!"

In Europe, they have been "getting on with it" in terms of significant wind energy developments. Public opinion there also shows 80% of European Union (EU) citizens support wind energy when asked. But, for any

### NEXT WEEK: RESPONSIBLE RELATIONSHIPS

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involved in wind project planning and siting, there is a challenge from organized groups that step forward in strong opposition. Social debate about renewables has to happen in an open, factual manner, engaging as many stakeholders as possible.

Ontario is experiencing this same tug between those supporting the shift to clean energy and those who accept it in principle but not in their own community and those who don't want it anywhere. So a public opinion survey was done. I mentioned it briefly in the previous column on WIND and GOVERNMENT. In that Ipsos Reid survey, 1,361 adults living in Ontario were interviewed online. Why? To take a measure of how many people are aware of the new shift to clean renewable energy and what are the main pro's and con's to public opinion on wind energy and wind farms?

The survey sample was divided into 225 participants from Southwest Ontario, 296 from Central Ontario, 225 living in Northern Ontario, 231 from Eastern Ontario and 384 from the Greater Toronto Area. Maybe some of you participated.

### What were the six survey questions? They were –

To what extent do you support or oppose the production of wind energy in your region of Ontario?  
To what extent do you support or oppose the production of wind energy in your community?  
Are you aware of any wind energy developments (either proposed, in construction or already built) in your area?  
What do you consider to be the main benefits of wind energy? List as many as come to mind.  
What do you consider to be the main drawbacks of wind energy? List as many as come to mind.  
Thinking about wind power in general, to what extent do you agree or disagree with the following statements –

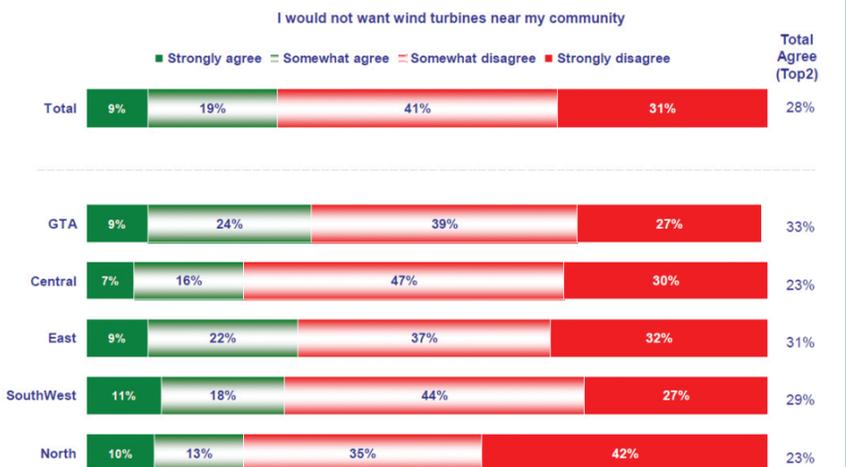
- I would not want wind turbines near my community
- My municipal government should be working to encourage and facilitate wind energy development in my community
- Ever since the BP Oil spill disaster in the Gulf of Mexico, I think we need to focus more on alternative sources of energy
- I think wind energy development could provide a number of important economic opportunities and benefits for my community
- I think wind turbines have less impact on human health than conventional sources of electricity generation like coal and nuclear power

The responses to the questions that best answer our concern about how many are alert to the shift to renewable energy and the negative and positive views of the alert are visually presented as bar graphs in this column to questions 1, 3 and 6(i).

The key findings to the recent Ontario public opinion survey are clear.



### Just Three in Ten (28%) Agree Say They Don't Want Wind Turbines Near Their Community



Q6. Thinking about wind power in general, to what extent do you agree or disagree with the following statements? Base: All respondents n=1,361

Most Ontarians support the production of wind energy in their region of the province. Just three in 10 people said they would not want wind turbines in their community. The pros and cons of wind energy seem clear in people's minds. At the end of the day, the survey shows most Ontarians do want and expect governments to support wind energy projects.

Here on Manitoulin Island there has been negative rumbling too. We didn't commission an opinion survey. Instead, I have made every effort to reach out to all of you at public meetings, at community events, through these weekly columns, in one-on-one meetings with stakeholders, by making myself available to Council and residents.

I continue the Manitoulin Winds News column for improved communication with and education of local residents as well as myself as I research the topics weekly to provide a source of reliable information to those interested. This is all for a good cause and the project makes sense. The purpose of this column is not to respond to unsubstantiated, often outrageous statements through negative ads that appear in this newspaper by other groups. I would hope that the flavour of this article clearly shows a difference in approach. Many of you have commented on that distinction and it has been appreciated.

I have been approached at the coffee shop and in the grocery store or when filling up the truck with gas. I value that contact and these exchanges. There have been many frank discussions. I meet any question with facts and study results and the partnership's commitments. We are honouring the Ministry of the Environment (MOE), the Ministry of Natural Resources (MNR) and all the other government ministries' strict regulations and guidelines.

Public opinion matters. Social acceptance by this community to the McLean's Mountain Wind Farm matters. This project will make a positive difference to this community and to the province. Your openness and your engagement in this process have mattered to all of us involved in the wind farm's development.

If you have questions that haven't been addressed, please don't hesitate to send them along to me via the project office. You can reach me personally by email at [rick.martin@northlandpower.ca](mailto:rick.martin@northlandpower.ca).

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# MANITOULIN WIND NEWS

## RESPONSIBLE RELATIONSHIPS



By Rick Martin,  
Senior Manager, Business Development Wind Energy  
Project Manager, McLean's Mountain Wind Farm  
Northland Power Inc.

It is the unknown or the unfamiliar that breeds fear. Recent talk on the Island about landowners involved in the McLean's Mountain Wind Farm being described as "bad neighbours" is disturbing. First of all, it isn't a neighbourly comment and secondly, neighbours don't become or stay in a "good" relationship when name-calling and threats are thrown about. The landowners involved in the development of the McLean's Mountain Wind Farm are the same people they always were; committed, engaged and reliable. They have acted on the initial offer extended to all landowners in the vicinity of the project and have been responsible neighbours in the process. Landowners' input has been invaluable to understanding and accommodating community sensitivities.

How will the wind farm and the landowners whose property accommodates the turbines remain good neighbours with the Manitoulin Island community? Will the municipal government requirements and processes be ignored or honoured by the McLean's Mountain Wind Farm developer despite permission under the Green Energy Act to bypass local governments? What efforts will the McLean's Mountain Wind Farm project make to support local community-based groups and organizations promoting sustainability, tourism and small business? Let's answer these questions by talking about responsible relationships.

Being a good neighbour – residential or corporate – involves following some basic principles and courteous conduct. To go back to the earlier comment, there have been suggestions made recently and publicly that the landowners involved in the wind farm were forced to sign a "gag" order stopping them from speaking with their neighbours about the project. Let's be perfectly clear: We're business people and with any business transaction people sign an Agreement that includes a Non-Disclosure clause called an NDA. An NDA works in the best interests of both parties keeping their business arrangements private. I doubt anybody on this Island would like people throughout the community knowing details of their business. It's proper. It's about privacy. It's just a standard business practice. Would you like people discussing publicly your wages or benefits from your job, or the value of your home or farm? I DON'T THINK SO. Talk of "gag orders" is unfounded. We have a mutually-respectful, courteous and responsible relationship with the landowners.

I'd like to share with you some thoughts on a number of the other responsible relationships we at the McLean's Mountain Wind Farm project have made over the past several years on Manitoulin Island. I'd like to start with the municipality. Again, there's talk. Well anyone who tells you we have ignored, bypassed or treated the NEMI Council and Town offices with contempt is being untruthful.

I am proud of the good relationship forged with the professionals working within the municipality including the chief administrative officer, the building inspector and public works team. They have been kept abreast of all the changes in the project and phases. I often consult them for advice. No, the Green Energy Act doesn't require it. Yes, it is part of our responsible relationships. The Road Users Allowance Agreement made with the help of the Town is proof of the consultative, courteous relationship. I value the municipal advice and knowledge and respect their role in the development process. I also have good rapport with NEMI Councillors and past Mayors who have been pro or con wind development. The project office is always open to these elected officials and they have welcomed me at Council Chambers too. We keep the opportunity open, at all times, for communications to be direct, transparent and meaningful.

First Nation peoples are a very big part of the Manitoulin Island community. We have invested time and effort to understand the history and special circumstances that impact their decision-making processes and we've learned a lot. This ushered us into a partnership in the McLean's Mountain Wind Farm. That just would not have happened without sound communications and good relationship building efforts over time.

### NEXT WEEK: OZONE PRESERVATION

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Those efforts include reaching out to those who work to make the Island a special destination and supporting, when possible, local community-based groups and organizations promoting sustainability, tourism and small business. In spite of us not having an operating facility, generating revenue, here, we've shown that commitment already through participation in the Manitoulin Trade Fair and other community support.

This project isn't being forced upon anyone. We came in and followed protocols in terms of knocking on doors, introducing ourselves and then honouring commitments and remaining accessible. When we made an agreement or commitment we kept them. We've never gone back on our word. We are good corporate neighbours. I would like to think that our efforts to date have been successful because of these responsible relationships. I have been going over the steps and commitments that made that possible and see we have forged something of a Good Neighbour Charter. At least, that's what I've called it. I'd like to share the key points with everyone through this column. You'll see it reflects the principles of social responsibility applied to doing business.

### GOOD NEIGHBOUR CHARTER

The residents of Manitoulin Island can expect the following from the McLean's Mountain Wind Farm:

1. OPEN COMMUNICATIONS
2. RESPECT LOCAL GOVERNMENT
3. SOUND ENVIRONMENTAL PRACTICES
4. PROTECTION OF TOURISM VALUES
5. SAFE UPKEEP OF OUR ROADS
6. CONSIDERATION OF RECREATIONAL LAND USES
7. SUPPORT FOR COMMUNITY ACTIVITIES
8. MAINTENANCE OF BUILDINGS AND PROPERTY

Responsible relationships mean each side takes responsibility for their conduct and that includes coming forward with questions and concerns or any issues you feel need to be discussed. If there is something you want me to cover in a column or in a response to you individually or to your local community group, please contact me. My direct email address is [rick.martin@northlandpower.ca](mailto:rick.martin@northlandpower.ca)  
The project office contact information is included.

### IN MEMORIAM RAYMOND COLLINS

I would like to extend personal condolences to the family and friends of  
Raymond Collins, a loyal landowner and a good friend.

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# MANITOULIN WIND NEWS

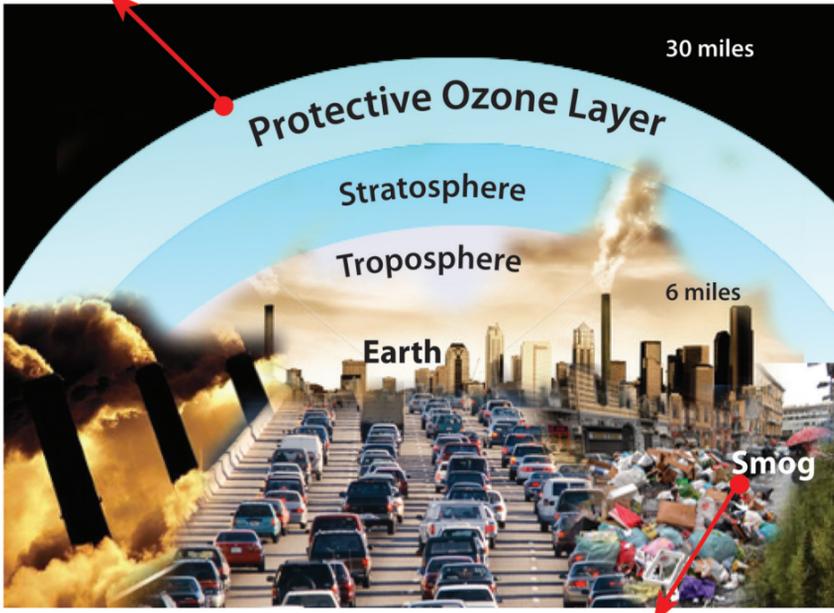
## OZONE PREVENTION



By Rick Martin,  
Senior Manager, Business Development Wind Energy  
Project Manager, McLean's Mountain Wind Farm  
Northland Power Inc.

The United Nations' (UN) International Day for the Preservation of the Ozone Layer is celebrated on September 16 every year. This event commemorates the date of the signing of the Montreal Protocol on Substances that Deplete the Ozone Layer in 1987. At that time, representatives from 24 countries met in Montreal and announced to the world that it was time to stop destroying the ozone layer. Why does that matter to you? Ozone is both "good" and "bad". The ozone layer of the planet's atmosphere is our protection against harmful UV rays and prevents potentially damaging electromagnetic radiation from reaching the Earth's

Too little there... Many popular consumer products like air conditioners and refrigerators involve CFCs or halons during either manufacture or use. Overtime, these chemicals damage the earth's protective ozone layer.



Too much here... cars, trucks, power plants and factories all emit air pollution that forms ground-level ozone, a primary component of smog.

surface. But, ozone is also the poster chemical for air pollution, linked to many respiratory illnesses.

Ozone is known as O<sub>3</sub> or trioxigen consisting of three atoms of oxygen. It is less stable than the O<sub>2</sub> that we know and breathe as oxygen.

I thought it is important to all who accept the importance of environmental protection to be alert to this special day and the things that can be done by each of us to preserve the ozone. Clearly, the shift to wind power is consistent with an ozone preservation strategy.

So, let's begin with what is ozone and what are the primary causes of ozone depletion? How does ozone depletion impact climate change and our environment? Why is shifting to wind energy part of a broader solution to ozone preservation?

Ozone is produced naturally in the stratosphere. Please see the diagram that appears with this column for more details on the Earth's layers. This is "good" ozone. Scientists around the globe have been warning us for close to four decades that it is gradually being destroyed by man-made chemicals and harmful emissions from such things as two-stroke engines found in pleasure boats, leaf blowers, lawnmowers, etc.

Ground-level or "bad" ozone is an air pollutant that causes asthma and chronic obstruction pulmonary disease, as well as damaging crops, trees and other vegetation.

We are lucky to have thousands of beautiful lakes and rivers to enjoy throughout this province, but particularly in and around our beautiful Manitoulin Island. While boating is an important part of our waterfront heritage and history, it comes with a shared responsibility. Small engines, particularly the standard two-stroke outboard, are a major source of hydrocarbon and other toxic emissions. Emissions from these small engines can contribute to ozone formation and can emit as much as 10 times the amount of pollution as a clean-air certified car.

A few hours of boating fun and water skiing seems like pretty basic summer fun, but the result when multiplied by thousands of other boaters and skiers has a big impact on the ozone layer. The experts say the impact of a two-stroke, 68 horsepower outboard, built before 1997, mounted on a 17 to 20-foot runabout boat hull commonly used for recreational water skiing is environmentally harmful. In a three-to-four hour afternoon of activity this boat's engine will consume about 80 litres of gasoline and 2 litres of lubricating oil, emitting roughly 30% of the partially burned (hydrocarbons) fuel directly into the water.

What happens to those hydrocarbons? They end up in the water in bottom sediments, as surface film or are released into the atmosphere. Please see the diagram of the Hydrological Cycle with this column. Atmospheric hydrocarbons are a prime cause of greenhouse gases and the thinning of the ozone layer. The harm extends to biological contamination that can invade aquatic ecosystems leading to shoreline erosion, harm to flora and nesting areas. All

from something that seems so simple and so much fun.

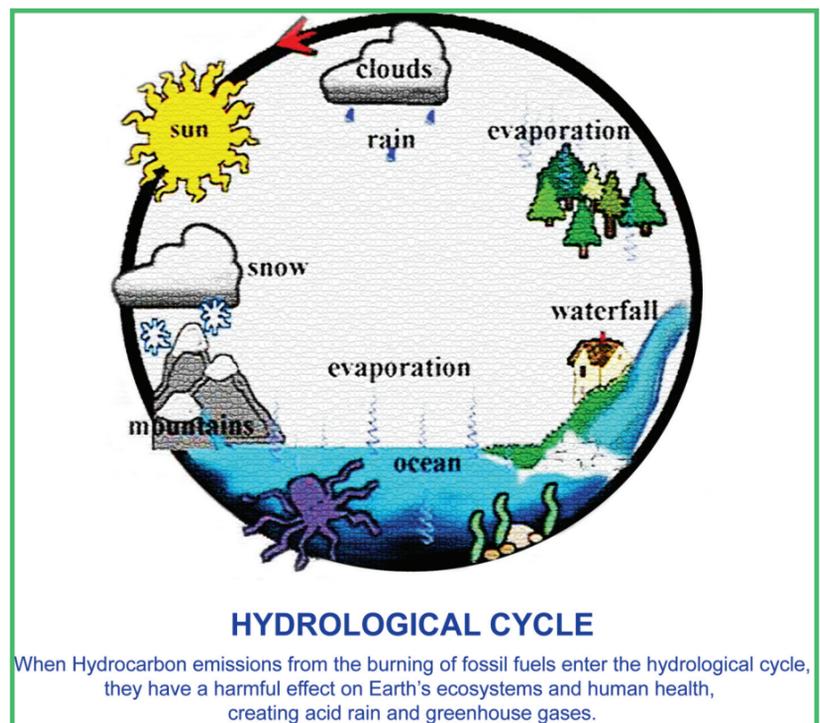
There has been much talk and concern about the impact the McLean's Mountain Wind Farm could have on the Island's environment. We accept those concerns and we have been working to ensure there will be minimal impact, constant monitoring and reporting. The public concern is sparked because the wind power is "new" and the turbines visible, but there are many, many things we do every day for pleasure and to maintain our properties that need a similar level of scrutiny and vigilance. At least with the wind farm, the checks and balances will be enforced and the overall impact of this renewable energy is to lessen climate change impact.

Did you know by exchanging 1,000 gasoline-powered lawnmowers for electric motors, that simple act can reduce VOCs (volatile organic compounds) by almost 10 tons per year which is equal to taking 230 cars from the highway? The ozone depleting equipment you may have in your home or garage include lawnmowers, leaf blowers and weed eaters using the small, two-stroke engines discussed earlier.

By comparison -- if we use a calculation from the Western Wind Energy (WEE) experience that shows that 2,000,000 kWh or 2,000 mWh of wind can produce enough power for over 200 homes, displace 900,000 kilograms of coal in the ground, reduce annual greenhouse gas emissions by 2,000 tonnes and remove 417 cars off the road -- then, the McLean's Mountain Wind Farm's 60 MW project would translate into 78 times more than the example provided above. That would mean a reduction in the carbon footprint equal to removing 32,426 cars. Just imagine!!

According to Statistics Canada, there are 12,683 permanent residents on Manitoulin Island. If, for discussion purposes, we said every one of those residents had a car, then the McLean's Mountain Wind Farm has the equivalency capacity of removing the carbon footprint impact of nearly three times that number of vehicles. That would no doubt account for our boats, snowmobiles and agricultural equipment too. That is a significant reduction in a source of acid rain and ozone depletion.

On September 16 this year or, as part of the countdown to this world environmental day focused on preservation of the ozone, you can make a difference. You can be sure to switch from gas-powered to electric when possible. You can maintain the equipment, making sure to change the oil and clean or replace filters regularly. You can be sure to use the proper fuel/oil mixture in your two-stroke engines. You can reduce mowing time and decrease lawn area by planting trees, shrubs and other ground covers. The point is you can do something and according to global scientists you should start now.



The governments -- including Canada -- that have signed up to tackle ozone preservation have banned and removed many harmful chemicals such as chlorofluorocarbon (CFCs) once widely used as refrigerants, propellants (in aerosol applications), and solvents. But the warning, and the purpose of a special day such as September 16th commemoration, is to get countries such as the United States and Canada to stop producing and engaging in activities that produce ozone-depleting substances. The goal is to take action to return the ozone layer to normal 1980 levels. The deadline to make that happen? 2080. That's if we all get alert and change our actions now.

This September we can take one big step to deal with the small two-stroke engines and make a difference to the Earth's ozone. Think about it.

Wind and renewable energy is only one part of being greener and cleaner.

If you want to discuss this topic further or have a topic or issue you feel needs to be covered, my door is always open at the Project Office and I am a phone call away. If you'd prefer, send me an email at [rick.martin@northlandpower.ca](mailto:rick.martin@northlandpower.ca)

### NEXT WEEK: MAINTAINING HABITATS

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# MANITOULIN WIND NEWS

## MAINTAINING HABITATS



By Rick Martin,  
Senior Manager, Business Development Wind Energy  
Project Manager, McLean's Mountain Wind Farm  
Northland Power Inc.

**HABITAT.** The first time I recall hearing the word was in relation to Habitat for Humanity. It is an international organization with a Canadian division, as well as many provincial and city-based chapters. Basically, Habitat for Humanity is a non-profit organization working towards the goal of a world where everyone has a safe and decent place to live. When we talk about maintaining habitats we are applying similar principles to conserve, protect, restore and even enhance areas that are safe and suitable for wild plants and animals. It is a very important undertaking and commitment.

Habitat conservation is a well-established land management practice. Habitat destruction or harm can occur naturally or as a result of human activity and poor development practices. The McLean's Mountain Wind Farm is committed morally and legally to maintaining the identified habitats on Manitoulin Island that reside within the project impact zones. I want to share this with you so idle talk of ruin and harm can be corrected. There have been conversations with residents of this community regarding preservation of grasslands, wetlands and forested areas. Let me share a few of the questions we've been getting and the answers that have been provided.

How do you ensure the open grasslands affected by the wind farm development that are important to Manitoulin Island's wildlife are maintained and protected so hunting and nature preservation are not negatively disturbed?

You've talked about wetlands and some water bird species in previous columns, but what are the McLean's Mountain Wind Farm plans and requirements to maintain wetlands habitats?

Forested areas on the Island have their own unique ecosystem and importance to the natural beauty on Manitoulin. What will be the project's commitments to maintain and protect forested areas?

Mitigation and offsetting policies exist in many jurisdictions throughout Canada, the U.S., and the rest of the world. Here in Ontario and with the development of the McLean's Mountain Wind Farm, it is the Ministry of Natural Resources (MNR) in particular that is responsible for the regulations, guidelines and monitoring to ensure habitat maintenance and mitigation.

Most of the policies do not have replacement of total habitat area as the primary goal of offsetting activities; rather, the goal is replacement of lost habitat functions and values. The Mitigation Hierarchy chart provided with this column is a common feature of most habitat conservation policies, which includes the sequence of mitigation alternatives: Avoidance of impacts, Minimization of unavoidable impacts, and Offsetting (or "Compensation") for unavoidable impacts.

Let's speak in plain language and not the bureaucratic talk related to these rules and regulations. The wind farm project is NOT allowed to harm the MNR designated habitats and/or the identified wildlife species and plants, particularly those considered to be at risk.

For each of the key habitat areas – grasslands, wetlands and forest – there are specific habitat conservation and mitigation requirements. They have been set by the MNR in consultation with experts. Independent of the studies we have had to conduct, MNR biologists, ornithologists (bird experts), ecologists and others have been in conducting their own studies. Why? Because, habitat management is taken seriously. It should be offensive to have anyone tell you otherwise.

When it comes to the open grasslands on Manitoulin Island, in addition to the regulatory issues and requirements, the McLean's Mountain Wind Farm MUST manage an area of 15 hectares (ha) of open country habitat. What does this promise mean? The focus of this habitat management program will ensure:

1. Active maintenance of open country habitat, consisting of either cattle grazing or bi-annual cutting of herbaceous and woody debris, to prevent succession or change in land use. This will ensure 15 ha of undisturbed open country habitat remains available for Open-Country Breeding Birds; and
2. Similar habitat maintenance will also provide the necessary habitat for a population of small mammals. These small mammals will support the Raptor Winter Roosting and Feeding Habitat; and
3. Agreement of participating landowners within the management zone (15 ha), prohibiting cutting between May 15 to July 15.

We have already provided a full column on the wetlands habitat maintenance and preservation, but to re-emphasize the MNR required commitments, it is important to share that the focus of the habitat management program will ensure:

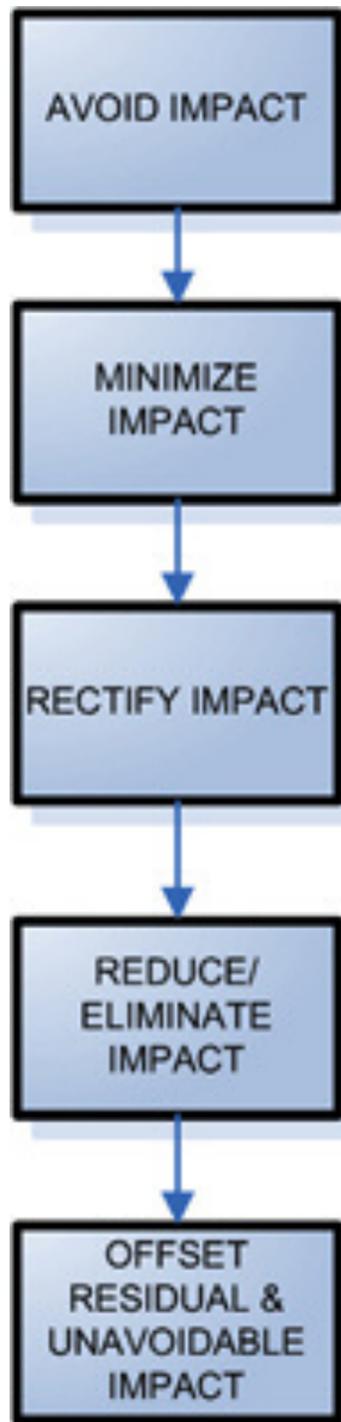
1. Strategic placement of waterfowl nest boxes within Waterfowl Nesting Areas greater than 200m from turbine edge; and
2. An agreement with current participating landowners to manage availability of nesting habitat within designated Waterfowl Nesting Areas equal to or greater than 1.4 ha.

When it comes to the forested areas, the habitat management plan is focused on protection of forest birds. To achieve this protection and preservation, the habitat management program will ensure:

1. Agreement of participating landowners' properties that overlap Forest Bird areas with a binding commitment not to undertake any modification of the forest that would create gaps greater than 20m wide or decrease the canopy cover to less than 75%;
2. Expansion of interior forest habitat through infilling areas which currently have a treed pasture community with restoration plantings using native tree species which complement the neighbouring vegetation communities and environmental conditions.

I can tell you that throughout this process, the MNR is making sure we enhance not harm these special ecosystems ensuring the habitats unique to Manitoulin Island and its biodiversity are preserved and protected.

I will never tire of inviting you to drop into the project office, speak to me by a phone call at a time of your convenience or reach me directly at my email address [rick.martin@northlandpower.ca](mailto:rick.martin@northlandpower.ca) I need to hear from you. We want to address your issues and concerns openly, directly and honestly. This project is being developed and will be managed properly and in keeping with sound and acceptable land management practices. Have an issue you want addressed through this column? You know how to contact me. Don't hesitate.



## MITIGATION HIERARCHY CHART

### NEXT WEEK: MANITOULIN WILDLIFE

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