

Sumac Ridge EBR Posting – Due May 20, 2013

1) Background and Introduction and Summary of City's Concerns:

Wpd Canada has proposed a wind farm in the former Township of Manvers, now Ward 16, City of Kawartha Lakes. The project is located in a rural area of the municipality, is in close proximity to two schools, near residential properties, abuts a conservation area, and sits on the Oak Ridges Moraine and prime agricultural land.

The City's key concerns centre around health and safety concerns, inadequate setbacks, lack of information, lack of environmental assessments, intense community concern, impact on roads and infrastructure, and conflicts with existing Oak Ridges Moraine legislation and our Official Plan.

The Sumac Ridge Wind Farm – Renewable Energy Approval (REA) proposed by wpdCanada Inc. was presented at a Special Council meeting held on February 5, 2013 in the City of Kawartha Lakes.

Wpd Canada is proposing the installation of a 10.25 MW onshore wind project. The project is known as the Sumac Ridge Wind Farm. The current design uses five 2.05 MW wind turbines with a maximum contract nameplate capacity of 11.5 MW. Two of these turbines are located in the Oak Ridges Moraine. As such, the entire project must be considered under the ORM legislation. The project is considered a Class 4 wind facility. The contracted Commercial Operation date of the Project is July 24, 2014. The operating footprint of the site is 4.52 ha. in total, however the site is comprised of several separate parcels of privately owned land in the former Manvers Township. The Sumac Ridge project sits between two other proposed wind projects, namely Settlers Landing and Snowy Ridge. The approximate boundaries of the Sumac Ridge project area are Highway 7A to the north, Ballyduff Road to the south, and between Highway 35 and Porter Road.

Settlers Landing and Snowy Ridge each propose an additional 5 turbines, for a cumulative total of 15 turbines amounting to three projects within 5 km of each other. These projects propose a total approximate output of 30 MW.

As outlined in O. Reg. 359/09 under the Environmental Protection Act there is a mandatory obligation on the proponent (wpd Canada) to consult with the City and to satisfactorily address municipal interests as defined by the Province. The City is required to complete Part B of the Municipal Consultation Form and forward the completed application form to the Ministry of Environment (MOE) for review. This form was submitted to the Ministry on March 11, 2013, together with over 1500 community objection letters, emails and petitions.

After the City met with Director Doris Dumais via teleconference in September 2012, The proponent was requested to provide detailed mapping so that accurate assessments could be done to ascertain whether all noise receptors and sensitive features had been included, a low frequency noise test and a hydro-geological report in light of the location of the project on a high aquifer vulnerability zone and the sand and gravel composition of the soil. The proponent has not provided the mapping as requested or a hydro-geological study.

City Council has passed a number of resolutions recommending that the Ministry of the Environment should not issue an REA for the Sumac Ridge Wind project and that the City is not a willing host.

At a previous Council meeting of November 22, 2011, the following resolution was adopted:

THAT Report DEV2011-093, "Renewable Energy Approvals Review Process Update", be received;

THAT the Province be requested to implement a reliable and accredited process to evaluate the impact of low frequency noise and perceptible infrasound (vibration) attributed to Industrial Wind Turbines (IWT), and established minimum requirements and mitigation measures for proponents to implement;

THAT until such time as low frequency noise and perceptible infrasound from IWT's is reviewed and mitigated through the REA approval process and based on conclusive and independent clinical health studies that eliminate the potential of adverse impacts to health, safety, and well-being of the public, the Province be requested to implement a moratorium on approvals of IWT projects in Ontario;

THAT the Province be requested to implement a minimum setback of two (2) km from the base of any IWT to the property line of any sensitive receptor;

THAT a review fee of \$2,000.00 be established by the City of Kawartha Lakes to offset costs and resources utilized to review, coordinate and complete the Municipal Consultation Form required as input into the REA approval process, and that this recommended fee be retroactively charged to include all active applications currently under review by the City;

THAT the Province be requested to consider amendments to the Green Energy Act and REA approval process that prescribe and give greater weight and consideration to meaningful consultation with both municipalities and the local community, and including a requirement for demonstrated municipal and local community support as a condition of project approval by the Minister of Environment;

THAT the Province be requested to require all Class 3, 4 and 5 wind projects under O. Reg. 359/09 to be subject to full Environmental Assessments; and

THAT these recommendations be forwarded to the Premier, the Minister of Environment, the Minister of Energy, MP Barry Devolin, MPP Laurie Scott, the Federation of Canadian Municipalities (FCM), the Association of Municipalities of Ontario (AMO), and to each proponent of an active application under the Environmental Protection Act - Ontario Regulation 359/09.“

To date, there has been no resolution to any of these requests. The City's concerns reflected in this Council resolution remain applicable to the Sumac Ridge Project.

On February 5, 2013 Council passed the following resolution:

THAT Report PLAN2013-003, "Sumac Ridge Wind Farm", be received;

THAT Council recommends that the Sumac Ridge Wind Farm Project as generally outlined in Appendix 'B' to Report PLAN2013-003 be refused by the Province;

and

THAT Council's recommendations, together with Report PLAN2013-003 and the Part B Municipal Consultation Form as generally completed in Appendix 'C', be forwarded to the Province.

In addition, on March 26, 2013, Council adopted the resolution below:

WHEREAS there are three (3) proposed industrial wind projects in the City of Kawartha Lakes (Sumac Ridge, Snowy Ridge and Settlers Landing); and

WHEREAS the Premier has stated that the Province will not force wind projects upon communities that are not willing hosts; and

WHEREAS our community is not a willing host;

THEREFORE BE IT RESOLVED THAT the City of Kawartha Lakes declares that it is 'not a willing host'; and

THAT this resolution be forwarded to the Premier, Minister of Energy, Minister of the Environment, Minister of Agriculture and Food, Minister of Rural Affairs, Doris Dumais, Director of Environmental Approval and Service Integration Branch of the Ministry of the Environment, MPP Laurie Scott and the Association of Municipalities of Ontario (AMO).

2) Health and Public Safety Concerns:

Noise Pollution - low frequency noise and perceptible infrasound

The Ministry currently has no definitive approval methodology for field measurement of the low frequency/infrasound noise emissions from multiple noise sources. As such there is no way for Ministry staff to confirm compliance or lack thereof with the noise limits set out in the approvals. The Ministry of the Environment has noted receipt of several hundred reports of noise complaints that are alleged to generate adverse health affects from the installation of IWT's.

Through ERT's deliberations of various wind projects, they have acknowledged that health impacts do exist from noise (audible, low frequency and infrasound) and that further research should be conducted to better understand the extent, impact and effect of such emissions.

The Erickson (ERT) expressed concern:

“...about the Director’s apparent lack of consideration of indirect health effects and the need for further work on the MOE’s practice of precaution...”and “The evidence presented by the Appellants, in totality, establishes that there may be an association between exposure to noise from wind turbines and certain indirect health effects”

The Erickson (Environmental Review Tribunal) also called for a low frequency noise test:

“The Tribunal heard evidence that there are challenges and uncertainties associated with predicting, measuring and assessing sound (including audible noise, low frequency sounds and infrasound). ... The Tribunal finds that some challenges and uncertainties remain despite continuing advances in this area. It is hoped that progress comes quickly, as compliance measurement will be an important aspect of the implementation of the new REA regime.”

ERT Conclusion:

“While the Appellants were not successful in their appeals, the Tribunal notes that their involvement and that of the Respondents, has served to advance the state of the debate about wind turbines and human health. This case has successfully shown that the debate should not be simplified to one about whether wind turbines can cause harm to humans. The evidence presented to the Tribunal demonstrates that they can, if facilities are placed too close to residents.”

Health Canada has indicated that there are peer-reviewed scientific articles indicating that wind turbines may have an adverse impact on human health. Until such time as there are conclusive studies that definitively discount the potential of adverse impacts to health, safety, and well-being of the public, the Province should undertake and impose a moratorium on approvals of IWT projects in Ontario. As there is no consensus or standards to address this impact, approval of any IWT projects remains premature.

Noise Receptors

There have been reports of missing noise receptors. Residents are in the process of comparing the maps provided by the proponent. The following receptors/addresses have been reported as omitted from the map:

- Fire/911 assigned numbers 760, 763 and 514 Ballyduff Road, 692, and 966 Hwy 35, 601 Gray Road, as well as 697, 840, and 1115 Hwy 7A.
- Three receptors are marked on the noise impact map along Waite Road, but four others are missing including fire sign numbers 657, 663, 693 and 697.
- 1037 Gray Road has been missed as a designated receptor even though there are 35 residential units at a greater distance which are marked as receptors including R060, R061 and R062
- Receptor locations for R015 and R017 are in the wrong location on the property.
- The map lists 4 receptors for buildings/vacant lots that do not exist -receptors 105, 106, 107, and 110. They are located on the map in a wilderness area that connects to Fleetwood Conservation Area. There are no buildings or vacant lots in this area.

Noise Studies

The proponent was asked to consider all turbines and low frequency noise. They failed to do so. The noise report provided by the proponent does not reflect the cumulative effect of the proximity to the other wind projects, missing noise receptors, rolling terrain, proximity of turbines to other proposed turbines, environmental conditions or low frequency noise. Wind projects that are installed in close proximity to each other present the potential for multiplier negative effects of noise pollution. As noted below, the proponent has made submissions to install multiple units in multiple locations adjacent to each other. The proponent has not adequately addressed this concern.

Shadow Flicker

Shadow Flicker has been associated with nausea and vertigo and in some instances, epilepsy. A number of properties will be subject to shadow flicker on a regular basis. Mitigation measures proposed by the proponent include, but are not limited to, closing curtains and blinds, or planting a tree to reduce the flickering effect. These measures will require some residents to keep their windows closed and covered during all periods of shadow flicker year round. This suggested mitigation is unreasonable and imposes solutions on existing residents rather than the proponent.

In contrast to the shadow flicker reports produced for other wind projects in the same area, the amount of shadow flicker seems unrealistically low. The properties to the north, east and west of the turbines would be likely be impacted. The report does not show the shadow flicker areas – it shows receptors – some of which are missing and a corresponding table that lists the amount of time that a receptor may experience shadow flicker.

Setbacks

- Setback of Turbine #1 is within 550m of a noise receptor.
- Setbacks from roadways to property lines do not meet the minimum requirements for turbine #5.
- Setbacks to participating landowners do not meet the minimum requirements.
- Setbacks to non-participating landowners do not meet the setbacks required for 15 turbines – see table below.
- Setbacks will sterilize development on all neighbouring properties for future development.

Noise and setbacks for cumulative number of turbines

In addition to the Sumac Ridge Wind Project, there are two other Industrial Wind Turbine Projects proposed for the area. Settlers Landing and Snowy Ridge each propose an additional 5 turbines, for a cumulative total of 15 turbines. Between the Sumac Ridge and Snowy Ridge Project, 10 turbines are proposed within a radius of approximately 4.6 km. Settlers Landing is approximately 5 km from Sumac Ridge to the south west. The location of the turbines in Settlers Landing and Snowy Ridge is public information. Snowy Ridge has applied for an REA. The Ministry has the information necessary to consider all turbines and their cumulative impact.

For ease of reference, the following is a chart outlining location details for all three proposed IWT projects in the City of Kawartha Lakes.

4.3 Wind Farm Layout

Wind turbine descriptions and locations for the Snowy Ridge Wind Park are included in **Table 4-1**. A map illustrating the wind park layout is shown as **Figure 2-1**.

Table 4-1: Wind Turbine Locations

Identifier	Equipment Make and Model	UTM Coordinates (NAD83)		Remarks
		X	Y	
Snowy T1	REpower MM92 2.0 MW, 100 m hub height	687,865	4,893,244	Snowy Ridge Wind Park
Snowy T2	REpower MM92 2.0 MW, 100 m hub height	688,293	4,893,473	
Snowy T3	REpower MM92 2.0 MW, 100 m hub height	688,910	4,893,931	
Snowy T4	REpower MM92 2.0 MW, 100 m hub height	689,412	4,894,063	
Snowy T5 Option 1	REpower MM92 2.0 MW, 100 m hub height	689,691	4,894,292	

Table 4-2: Wind Turbines for Other Wind Farms

Identifier	Equipment Make and Model	UTM Coordinates (NAD83)		Remarks
		X	Y	
Sumac Ridge T1	REpower MM92 2.05 MW, 100 m hub height	688,772	4,891,974	Sumac Ridge
Sumac Ridge T2	REpower MM92 2.05 MW, 100 m hub height	689,408	4,891,192	
Sumac Ridge T3	REpower MM92 2.05 MW, 100 m hub height	689,047	4,891,754	
Sumac Ridge T4	REpower MM92 2.05 MW, 100 m hub height	689,767	4,890,916	
Sumac Ridge T5	REpower MM92 2.05 MW, 100 m hub height	690,033	4,891,091	
Settlers T1	REpower MM92 2.0 MW, 100 m hub height (Included in calculations)	686,470	4,888,310	Settlers Landing Wind Park
Settlers T2	REpower MM92 2.0 MW, 100 m hub height (Not included in calculations)	687,603	4,885,855	
Settlers T3	REpower MM92 2.0 MW, 100 m hub height (Not included in calculations)	687,415	4,885,682	
Settlers T4	REpower MM92 2.0 MW, 100 m hub height (Not included in calculations)	688,414	4,886,135	
Settlers T5	REpower MM92 2.0 MW, 100 m hub height (Not included in calculations)	687,871	4,885,948	
Settlers T6	REpower MM92 2.0 MW, 100 m hub height (Not included in calculations)	688,252	4,885,866	
Settlers Substation Option 1	Modeled as a typical transformer (worst case for Snowy Ridge)	688,307	4,886,741	

The setbacks for the cumulative number of turbines as set out in the Regulations are listed below.

Item	Column 1	Column 2	Column 3
	Number of wind turbines calculated in accordance with subsection (2)	Sound power level of wind turbine (expressed in dBA)	Total distance from the centre of the base of the wind turbine to a noise receptor (expressed in metres)
1.	1-5	102	550
		103 – 104	600
		105	850
		106 – 107	950
2.	6-10	102	650
		103 – 104	700
		105	1000
		106 – 107	1200
3.	11-25	102	750
		103 – 104	850
		105	1250
		106 – 107	1500

3) Does not meet the intent of the Oak Ridges Moraine Conservation Plan (ORMCP):

The proposed project is located partially within the Oak Ridges Moraine Conservation Plan (ORMCP). The ORMCP is an ecologically based plan established by the Ontario government to provide land use and resource management direction for the 190,000 hectares of land and water within the Moraine. Through the legislation and the ORMCP, the Ontario Government has set a clear policy framework for protecting the Oak Ridges Moraine. This provincial policy is reflected in the City's official plan and zoning by-laws to inform when making decisions on development applications. The Plan also provides that:

“Any City Official Plan is required to be in conformity with the ORMCP. Nothing in this Plan is intended to prevent municipalities from adopting official plan policies more restrictive than the ORMCP, except where prohibited by the ORMCP.”

Concerns regarding nearby wells and the High Aquifer Vulnerability have been raised. The Oak Ridges Moraine is the primary source of water for over 250,000 people. Fleetwood Creek Natural Area is a 900-acre (380-hectare) tract of land located within the Oak Ridges Moraine. The area is characterized by steep valleys, sand soil and many cold water streams. These streams form the headwaters of Fleetwood Creek, a major watercourse within the Kawartha Region watershed. A Hydrogeological report was requested by a number of residents. A Geotechnical Report and Water Report was provided by the proponent, however, these reports are not the same as a Hydrogeological Report. Under the REA process, Hydrogeological Reports are not absolutely mandatory for this type of project. Nevertheless, reports that are not

required may be requested where conditions warrant and the City submits that the proposed installation is one such installation.

The disruption to the eco-system, including aquifers and sensitive habitats, both underground and surface may cause irreparable damage. Birds, bats and animals on the endangered species list are present in the area. Research studies demonstrated that bats are severely impacted by the change in air pressure experienced. Proposed mitigation measures do not adequately address the loss and reduction of habitat. Protected woodland areas will be cut to provide access to the installation locations.

The REA process incorporates some restrictions for alternative energy applications with the ORMCP. These restrictions are intended to protect significant natural heritage features including provincially significant wetlands, areas of natural and scientific interest, significant woodlands and valleylands, and sensitive water bodies. Under the REA process, and subject to approval from the Ministry of Natural Resources, the developer must submit a Natural Heritage Assessment and geotechnical surveys which evaluate the ground water and hydrology of the area. Staff required the production of additional reports including detailed maps showing high aquifer vulnerability zones, natural heritage features and a hydrogeological report. The proponent has not provided this requested information.

The objective of environmental protections in the ORMCP is comprised by permitting renewable energy projects within this sensitive ecological feature. The applicants have not demonstrated that these environmentally significant features will not be impacted and/or will be protected, as mandated by the ORMCP.

4) Official Plan Conformity:

The subject lands are located partially in the City of Kawartha Lakes Official Plan (CKLOP) and partially in the Oak Ridges Moraine Official Plan (ORMOP). The land is designated *Countryside Area* in the ORMOP, and *Prime Agricultural* and *Environmental Protection* in the CKLOP (Appendix 'E').

The purpose of Countryside Areas is to encourage agricultural and other rural uses that support the Plan's objectives by:

- a) Protecting prime agricultural areas;
- b) Providing for the continuation of agricultural and other rural land uses and normal farm practices;
- c) Maintaining the rural character of the Rural Settlements;
- d) Maintaining, and where possible improving or restoring, the ecological integrity of the Plan Area;
- e) Maintaining, and where possible improving or restoring, the health, diversity, size, and connectivity of key natural heritage features, hydro-logically sensitive features and the related ecological functions;
- f) Maintaining the quantity of groundwater and surface water;
- g) Maintaining groundwater recharge;
- h) Maintaining natural stream form and flow characteristics;
- i) Protecting landform features;
- j) Accommodating a trail system through the Plan Area and trail connections to it; and
- k) Providing for economic development that is compatible with clauses (a) and (k) above the Nature of the Countryside Areas.

The following uses are permitted with respect to land in Countryside Areas:

- 1) Fish, wildlife and forest management,
- 2) Conservation projects and flood erosion control projects,
- 3) Agricultural uses
- 4) Transportation, infrastructure, and utilities as described in Section 41 of the ORMCP. Section 41 provides that transportation, infrastructure and utility uses include: (a) public highways; (b) transit lines, railways and related facilities; (c) gas and oil pipelines; (d) sewage and water service systems and lines and stormwater management facilities; (e) power transmission lines; (f) telecommunications lines and facilities, including broadcasting towers; (g) bridges, interchanges, stations, and other structures, above and below ground, that are required for the construction, operation or use of the facilities listed in clauses (a) to (f); and (h) rights of way required for the facilities listed in clauses (a) to (g).
- 5) Home businesses
- 6) Home industries
- 7) Bed and breakfast establishments
- 8) Farm vacation homes
- 9) Low-intensity recreational uses as described in Section 37 of the ORMCP
- 10) Unserved parks
- 11) Mineral aggregate operations
- 12) Wayside pits
- 13) Agricultural-related uses
- 14) Small-scale commercial, industrial, and institutional uses as described in Section 38, subject to subsection 13 (5) of the ORMCP
- 15) Major recreational uses as described in Section 38, subject to subsection 13 (5) of the ORMCP
- 16) Uses accessory to the uses set out in paragraph 1 to 15

Industrial Wind Turbines are not a permitted use. In addition, these specific uses are only permitted to cross a key natural heritage feature or a hydrologically sensitive feature if the applicant demonstrates that,

- a) the need for the project has been demonstrated and there is no reasonable alternative;
- b) the planning, design and construction practices adopted will keep any adverse effects on the ecological integrity of the Plan Area to a minimum;
- c) the design practices adopted will maintain, and where possible improve or restore, key ecological and recreational linkages;
- d) the landscape design will be adapted to the circumstances of the site and use native plant species as much as possible, especially along rights of way; and
- e) the long-term landscape management approaches adopted will maintain, and where possible improve or restore, the health, diversity, size and connectivity of the key natural heritage feature or hydrologically sensitive feature.

The portion of the project that is located within the Oak Ridges Moraine Boundary has been identified as an area of High Aquifer Vulnerability. The Plan states that development in wellhead protection areas and areas highly vulnerable to groundwater contamination is limited. Development near these hydrologically sensitive features is only permitted if it will not adversely affect these features. The City has requested a Hydrogeological Report and detailed mapping showing high aquifer vulnerability zones, natural heritage features from the proponent, but to date has not received the information requested.

The following uses are permitted within the Prime Agricultural designation of the City's Official Plan:

- Agricultural uses
- Agriculture-related uses
- Single detached dwellings accessory to the other permitted uses
- Garden suites
- Secondary uses including kennels
- Wayside pits or quarries, portable asphalt plants and portable concrete plants all of which shall only be used on public authority contracts
- Limited agri-business uses

Permitted uses within the Environmental Protection Designation should maintain the unique natural characteristics of such lands and should not contribute to problems of erosion, flooding, pollution or the deterioration of the environment. Except for erosion or flood control, buildings and structures are not permitted in this designation.

It is important to note that City Council has endorsed the establishment of approximately 75 MW of renewable energy through the Green Energy Act. There is no demonstrated need for this additional project in the Oak Ridges Moraine.

5) Zoning By-law Compliance:

The southern portion of the subject lands are zoned 'Oak Ridges Moraine Country Side Area (ORMCS)'. The permitted uses in this zone are:

- a) Agricultural uses;
 - b) Fish, wildlife and forest management;
 - c) Low intensity recreational uses;
 - d) Conservation projects and flood and erosion control projects;
 - e) Transportation, infrastructure and utilities;
 - f) Home business;
 - g) Home industries;
 - h) Bed and breakfast establishments;
 - i) Farm vacation homes;
 - j) Wayside pits;
 - k) Agricultural-related uses;
 - l) Single detached dwelling if:
 - i. The use, erection and location would have been permitted by the Township of Manvers Zoning By-law 87-06, as amended, on November 15, 2001; and
 - ii. The applicant demonstrates, to the extent possible, that the use, erection and location will not adversely affect the ecological integrity of the Oak Ridges Moraine Plan Area.
- Accessory uses to the above permitted uses.

An Industrial Wind Turbine is not a permitted use in any zone in the Oak Ridges Moraine Zoning By-law 2005 -133. The northern half of the subject lands are zoned 'Rural General (A1) Zone' in the Township of Manvers Comprehensive Zoning By-law 87-06. This zone permits a variety of agricultural uses, as well as hydro or communication facility. An Industrial Wind Farm is not a permitted use.

4) City Roads and Infrastructure:

- The proponent has not obtained all the necessary permits or approvals for road access, road realignments and widening, or building permits.
- The proponent has not conducted required studies to assess potential impacts of additional traffic, including construction traffic on residents or municipal infrastructure.
- The proponent has not reached agreement with the City on compensation for damage to roads or private property.
- The proponent has not reached an agreement with Emergency services for emergency management or protocols. The Fire Dept. does not have the training, equipment, expertise or resources to handle a fire or emergency related to fire or high elevation rescue. The current plan is to clear the area and stand back.
- The proponent has not entered into an agreement to provide a letter of credit or security to cover damage to roads, or municipal infrastructure, decommissioning, lost property tax revenue in the event of property devaluation.
- The proponent has not provided information on liability insurance with respect to accidentally injury or damage.

Submission of the Part B consultation form should not be interpreted as support for this project with conditions, but to identify and protect City interests.

7) Conclusion:

The City of Kawartha Lakes has made a number of recommendations to the Province calling for a moratorium on approvals of Industrial Wind Turbine projects in Ontario, 2 km setback to property lines, low frequency noise testing protocol, clinical health studies and full environmental assessments. As well, the proponent has not demonstrated that the proposed development will not negatively impact the integrity and sensitive features of the Oak Ridges Moraine. As such, the City does not support approval of this project and is requesting the Province not to issue the REA.