Welcome to the Gunn's Hill Wind Farm Public Information Open House

Prowind Canada Inc. is a Canadian corporation based in Hamilton, Ontario with a mandate to develop and operate wind power generation facilities in Ontario and across Canada.

Prowind Canada is a wholly owned subsidiary of Prowind GmbH (Osnabrück, Germany), a full service company whose core competencies are the planning, financing, construction and operation of power plants driven by renewable energy.

Prowind maintains strong relationships with the farming community. We believe wind energy and agriculture make great partners.

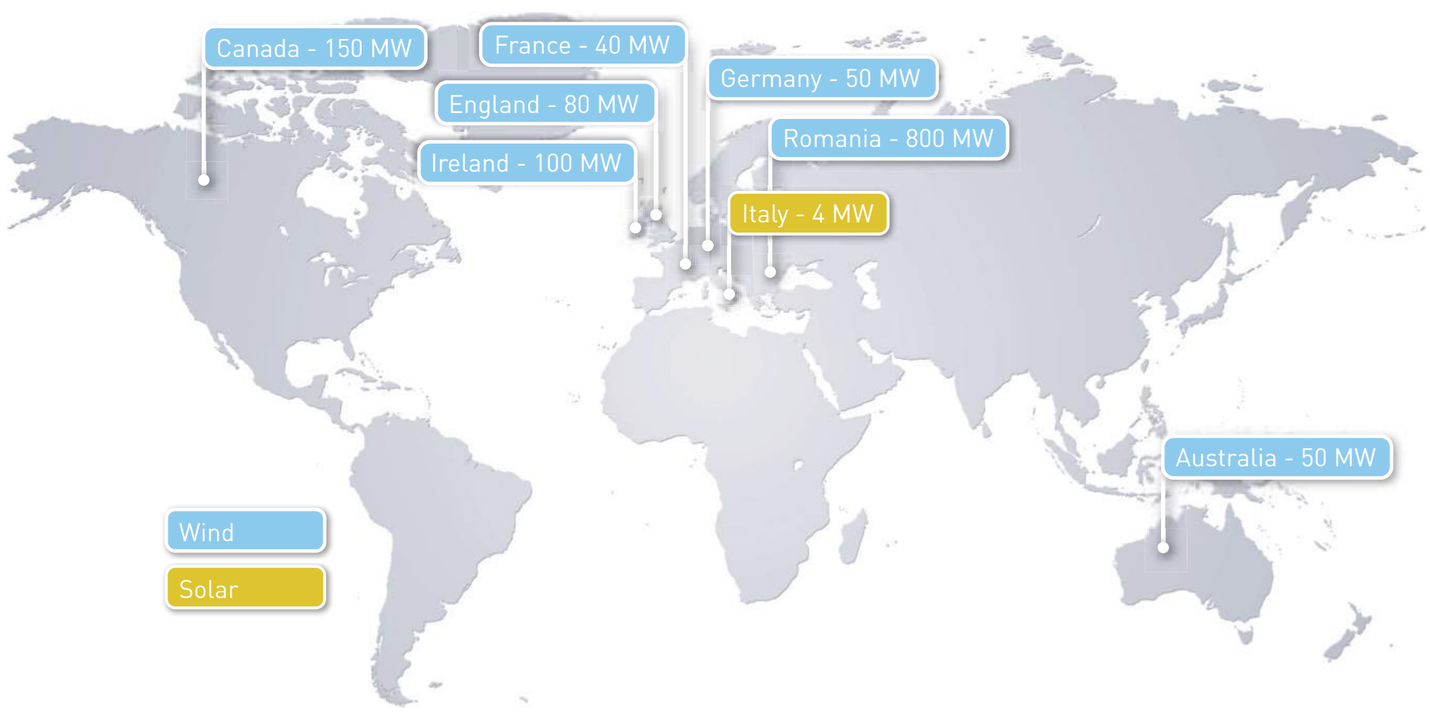
Company history

Prowind was established in 2000 by dairy farmer and lawyer Johannes Busmann. It has since completed 23 successful wind power projects in Germany for a total of over 110 megawatts (MW) of installed capacity and over 1,200 MW of projects under development around the world.

Canadian presence

Prowind established operations in Canada in 2007 to respond to the growing need for responsible development of sustainable energy solutions in the Province of Ontario.

Global development projects



"Prowind seeks to develop viable wind farms that produce clean, renewable power in agricultural settings. Our projects are designed to both support and preserve farming operations and to continually provide revenue to rural communities in Canada." (Jeff Segal, President)

Contact information

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Gunn's Hill Wind Farm

The Gunn's Hill Wind Farm is proposed as a 25 megawatt (MW) wind energy generation facility. Once constructed, the facility will be able to produce enough renewable electricity to power approximately 8,600 homes per year - that's enough to power the entire Township of Norwich and more.

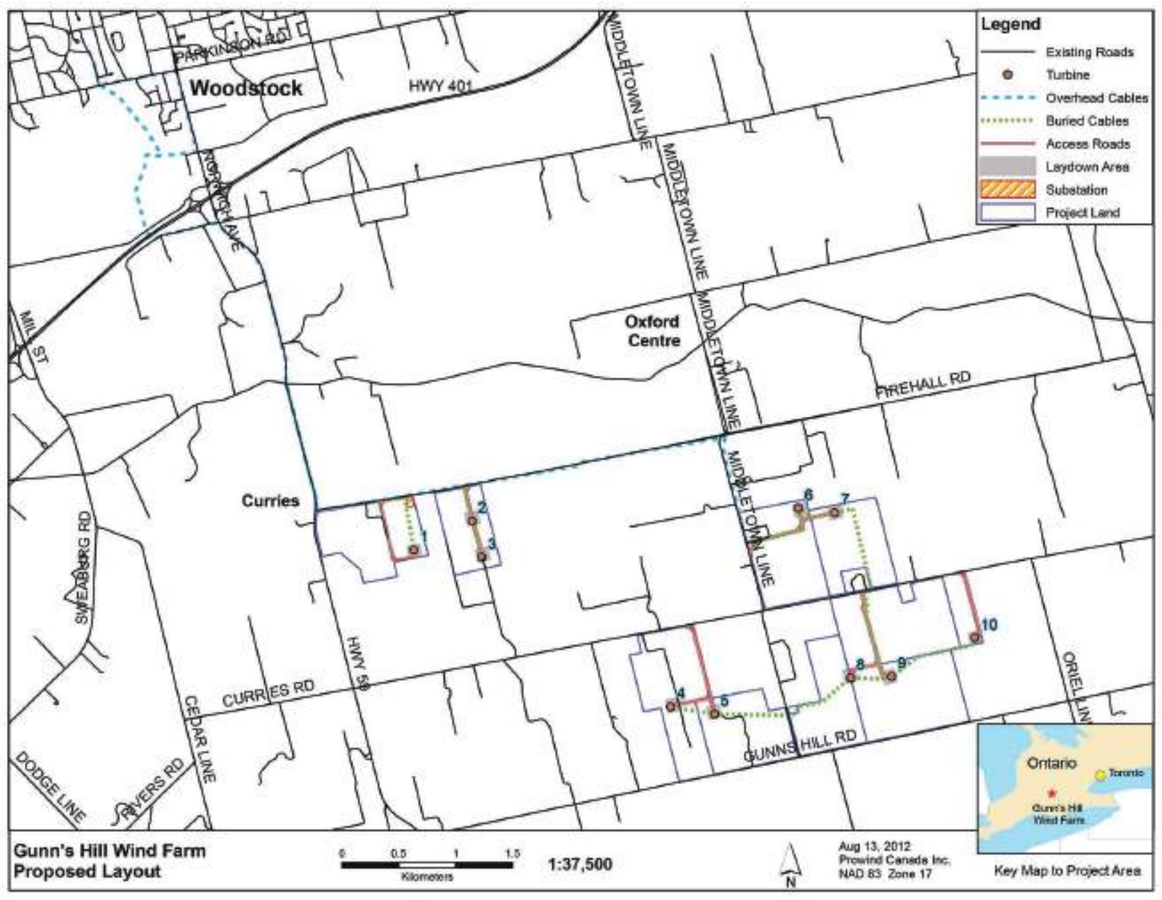
Project area – 10 turbines

Project requirements

- Turbine access roads;
- Switching substation;
- Underground electrical cabling; and
- Operations and maintenance facility.

Construction stage

Temporary facility will include concrete wash ponds, construction site office and storage sheds.



Benefits to local economy

- 200 jobs - locally sourced where possible- during planning, development and construction;
- $25,000 annual community benefit fund, established once the project is operational and allocated through a citizen's group comprised of residents, business owners and local government, who will allow the community to decide how these funds are best distributed;
- 2-3 permanent jobs once operational; and
- $65,000 for taxes paid annually by the wind farm to the municipality.

Project timeline

Milestones reached

- **May 2008** – Meteorological tower erected
- **March 2008** – Environmental monitoring began
- **August 2008** – Acoustic bat monitoring preliminary public meeting
- **February 2009** – Winter bird monitoring
- **June 2009** – Summer bird monitoring
- **August 2009** – Radar bat monitoring
- **September 2009** – Fall bird monitoring
- **November 2009** – FIT application submitted
- **January 2010** – Initial public meeting in Township of Norwich
- **July 2011** – FIT contract awarded
- **Summer 2011** – Field studies conducted
- **Summer 2012** – Field studies completed

Future milestones*

- **Fall 2012** – Initial public meeting in Woodstock
  Draft REA for public review
- **Winter 2013** – Final public meeting
- **Summer 2013** – REA decision
- **Fall 2013** – Construction begins
- **Summer 2014** – Wind farm commissioning

* Best estimates at this time

Wind Energy Facts

Wind energy is a clean source of energy that does not contribute to global warming. Just one modern wind turbine will save over 4,000 tonnes of CO_2 emissions annually. Adding wind power to the energy supply diversifies Canada's energy portfolio while reducing the country's reliance on fossil fuels.

Wind energy generates clean electricity while creating new jobs, and spurring economic development in communities across Canada.

Wind energy is...

- a renewable energy source.
- a pollution-free energy source.
- a very abundant energy source.
- used to generate electricity.
- economically competitive.
- one of the lowest priced renewable energy sources.
- a good compliment to other energy sources.
- a new source of income for rural landowners and communities.

The Canadian Wind Energy Association believes that wind energy can satisfy 20 per cent of Canada's electricity demand by 2025. The benefits of achieving this vision are many:

- $79 billion in new investment
- 52,000 new high quality jobs
- $165 million in annual revenues for municipalities
- Reducing Canada's annual greenhouse gas emissions by 17 megatonnes

"We cannot afford to delay further action to tackle climate change...Delaying action is a false economy: for every $1 of investment avoided in the power sector before 2020 an additional $4.3 would need to be spent after 2020 to compensate for the increased emissions."

International Energy Agency, World Energy Outlook, 2011.

Wind energy in Canada

- With Ontario in the lead, Canada is now the ninth largest producer of wind energy in the world with an installed capacity of 5,511 MW – representing about 2.3 per cent of Canada's total electricity demand.
- In 2011, Canada added 1,267 MW of new wind energy capacity to grids in nine provinces, representing an investment of $3.1 billion and creating 13,000 person-years of employment.
- More than 6,000 MW of wind projects are contracted to be built in Canada over the next five years.
- Ontario is Canada's wind energy leader with almost 2,000 MW of installed capacity – or about enough to power over 600,000 homes.
- Ontario is expected to install more than 5,600 MW of new wind energy capacity by 2018, creating 80,000 person-years of employment, attracting $16.4 billion of private investments, and contributing more than $1.1 billion of revenue to municipalities and landowners over the 20-year lifespan of the projects.
- Typically, each 100 MW of new wind energy capacity in Ontario creates over 250 jobs per year during the development phase and 18 permanent operations and maintenance jobs, many in rural areas of the province. Nearly $270 million in total private sector investment, including over $20 million in payments to landowners and municipalities will be made over the life of each 100 MW of wind energy capacity.

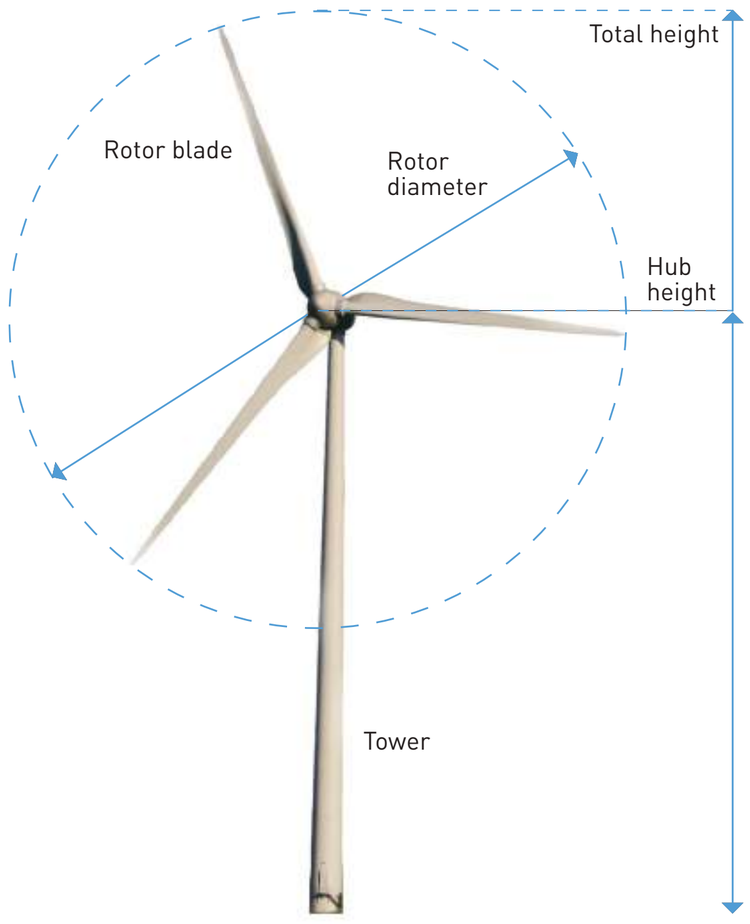
*Source of wind facts: Canadian Wind Energy Association

Technology

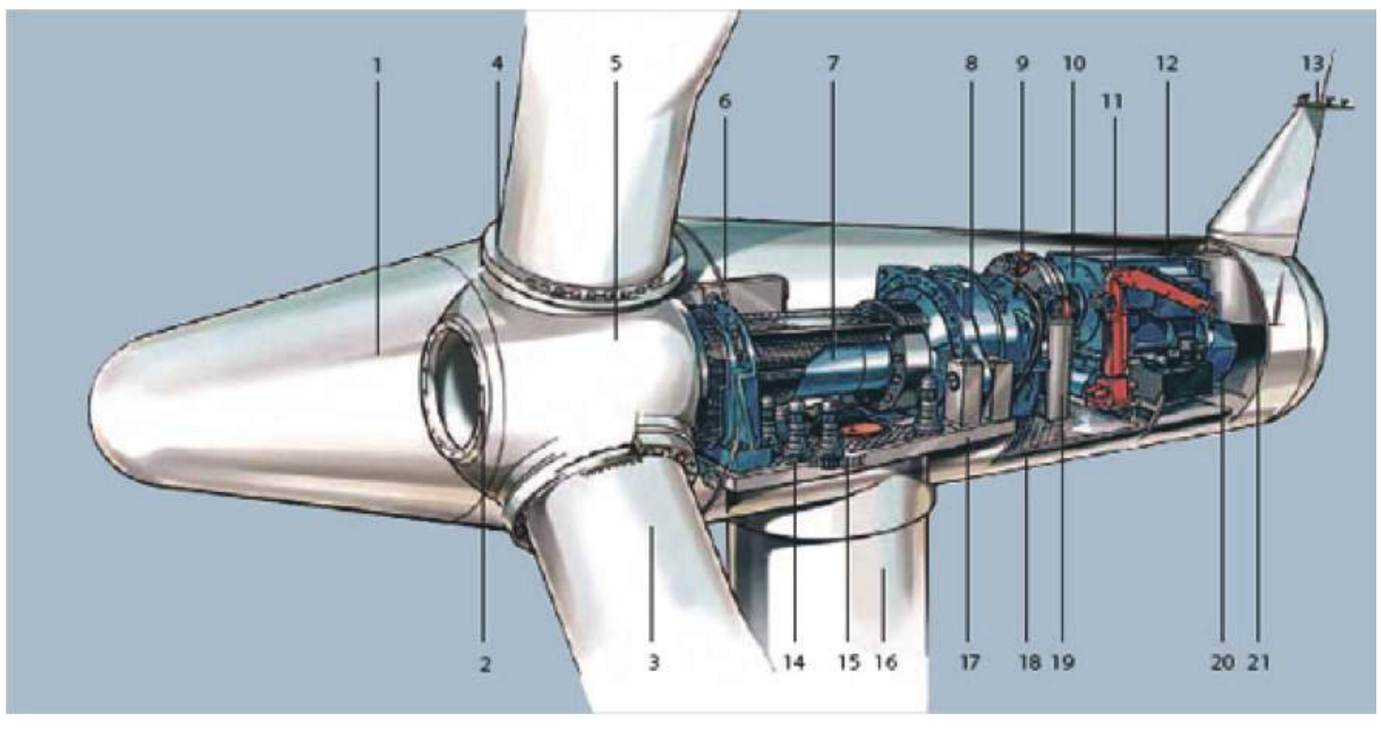
Prowind has chosen General Electric's GE 2.5xl turbine model for use at the Gunn's Hill Wind Farm.

Turbine specifications

Make and model	GE 2.5xl
Maximum rated output	2.5 MW per turbine
Tower and blade height	≤ 158.3m
Rotor diameter	≤ 120 m
Blade sweep area	≤ 11,310 m^2
Range of rotational speeds	5-14 RPM
Approximate foundation diameter	18 m
Maximum quantity required for Gunn's Hill project	10



Nacelle arrangement



Source: Siemens

1 Spinner
2 Spinner bracket
3 Blade
4 Pitch bearing
5 Rotor hub
6 Main bearing
7 Main shaft
8 Gearbox
9 Brake disc
10 Coupling
11 Service crane
12 Generator
13 Meteorological sensors
14 Yaw gear
15 Yaw ring
16 Tower
17 Nacelle bedplate
18 Canopy
19 Oil filter
20 Generator fan
21 Oil cooler

How a wind farm works

Wind: Wind is created by the sun through the uneven heating of the earth's surface.

Rotor: When the wind blows past a wind turbine blade, it creates lift and causes the rotor to turn. The blades on the rotor are able to control this lift by changing their angle.

Rotor Shaft: The rotor connects to a shaft that leads inside the nacelle (the box on top of the tower) that connects to a generator.

Generator: Modern generators are controlled by sophisticated electronics to match grid requirements.

Pad Mount Transformer: At the base of each turbine, there is a small transformer that increases the voltage.

Collection System: Turbines are joined together by a collection system made up of buried cables in fields and overhead lines along roadsides, allowing electricity to flow from each turbine to the substation.

Substation: The substation is the interface between the wind farm and the electrical grid.

Archaeology

Prowind wants to ensure that the Gunn's Hill Wind Farm will not disturb any local archaeological heritage. Professional, licensed archaeology consultants are engaged to complete the following monitoring programs.

Stage 1

- Assessments consist of a background history search on the project area, seeking to determine areas of high potential for archaeological importance.
- Preliminary Stage 1 surveys completed in 2009 by AMICK Consultants Ltd.

Results

All lands with archaeological potential to be directly impacted by the project warranted a Stage 2 property survey.

Stage 2

- Consultants from AMICK conducted the surveys.
- Pedestrian and test-pit (test holes dug out by shovel) studies looking for historical artifacts were completed of all areas impacted by project construction or operation in December 2009, and March and May 2010.
- Pedestrian surveys involve visual inspection of ploughable lands at 5 m transects. These lands must be recently ploughed, weathered and must also present at least 80% visibility of the soil.
- Areas not eligible for pedestrian survey were test-pitted at 5 m intervals. This requires that a 30 cm hole be dug by shovel and screened through a mesh sieve.

Results

One location was identified within the surveyed lands that contained artifacts and/or evidence of previous habitation – referred to as findspots.

Findspot 1 – A single First Nations findspot was encountered in the form of an isolated individual artifact, and does not represent a significant planning concern.

A small portion of the subject property on Curries Road, east of Middletown Line was not assessed, as this area is only to be subject to directional boring. No further work is recommended for the lands that were subject to the Stage 2 Physical assessment. Additional work along the overhead cable route, by Highway 59 and within the City of Woodstock limits, is ongoing. Results of this survey are expected within the month of October.

Heritage Assessment

A professional heritage assessment team conducted a survey of homes, buildings and vistas surrounding the project during May 2012. The survey identified Built Heritage (BH) resources or Cultural Heritage Landscapes (CHL) with significant Cultural Heritage Value or Interest (CHVI) and completed impact assessments for each.

This assessment involved desktop historical land-use studies and windshield surveys of the area for identification of culturally significant heritage features. Conclusion - there will be no impacts from the wind farm on heritage features or landscapes in the project area.

Results

- No CHL with CHVI were identified in the Gunn's Hill project area.
- 26 BH resources with CHVI were identified on or in close proximity to a proposed turbine location. The study concluded that none of the turbines will have an impact on the current location of any heritage resource.

Special Species Studied at the Gunn's Hill Wind Farm

Bird surveys

Numerous bird surveys conducted at the project site in 2008 and 2009 evaluated the sensitivity of the habitat for bird species. The Gunn's Hill Wind Farm is located in a highly active agricultural area, where much of the natural habitat has already been compromised and is of limited value to bird species.

Bat monitoring

Combination radar/acoustic bat surveys conducted at the Gunn's Hill Wind Farm determined diversity and abundance of species in the local area. Surveys involved radar monitoring to capture flights of bats and birds in a 6.7 km^3 area. Acoustic monitoring differentiated between birds and bats.

Turbine placement established with the intent of minimizing the impact on bird and bat populations.

Frog monitoring

Surveys conducted from March to June of 2011 by a professional ecologist determined the following:

- The abundance of frogs in the area;
- Type of species found; and
- If their habitat can be considered significant.

Frog surveys consisted of Call Counts conducted at eight locations throughout the project area. The surveyor stood in each survey location for a minimum of three minutes and noted the species of frogs heard, the approximate number of each species and their approximate location. This survey was conducted three times during the frog breeding season (May to June) to capture species that breed at different times.

Fish and fish habitat

The unnamed stream that flows through the project area at Firehall Road is a small permanent watercourse on the landscape. Because there is a possibility for fish and fish habitat to be found within this watercourse, potential implications for species found within the project base and downstream have been thoroughly investigated.

Wetlands

Several potential wetland areas were identified within the project boundaries. Surveys have been completed to assess the possibility of any risk of negative impacts.

Details of each survey will be found within the Gunn's Hill Wind Farm Renewable Energy Approval, Natural Heritage Assessment Report, once complete.

Radar and Telecommunications

Radar

Wind turbines pose a unique challenge for radar stations in North America and the world. This is because turbines are tall structures with moving components; when viewed on a radar screen, it can be difficult to distinguish between turbines and other moving objects in the sky[1].

Nav Canada radar monitoring efforts near airports and airfields must be carefully examined to ensure the potential for interference is identified and mitigated.

Prowind has been in contact with Nav Canada since 2009 to ensure compatibility with airport radar systems. The most recent analysis of the Gunn's Hill Wind Farm by Nav Canada was conducted in August 2012.

Conclusion

Nav Canada has indicated that the 10 proposed turbines will be visible to both the London and Hamilton airport radar installations and there are no objections to the project's construction. Nav Canada's approval is for 10 turbines only and does not apply to any further turbines at the site.

Radio communication

Communication networks may be impacted by the development of a wind farm due to either signals being blocked by or reflected off the turbines[2]. Consultation and study are underway on a number of communication systems:

- Point-to-Point Systems;
- Land Mobile Networks, as registered on Industry Canada's Spectrum Direct;
- Cellular Type Networks;
- Radio and Television Broadcast Stations; and
- Weather Radar.

Television and satellite reception

YRH & Associates (Montreal, QC) studied the potential impact of the project on analog CBC TV signals in the early stages of the project. As of July 2012, CBC has decommissioned their analog transmitters, therefore, no impact is expected.

In addition, YRH has indicated that impacts to satellite reception are extremely rare in Ontario based on the minimum setbacks and the angle at which satellite antennas are oriented.

Conclusion

Impacts to TV signals and satellite reception are not anticipated, however, Prowind will commit to mitigation measures should they occur.

[1] Feasibility of Mitigating the Effects of Windfarms on Primary Radar, ETSU W/14/00623/REP, Alenia Marconi Systems Limited. 2003. http://www.bwea.com/pdf/AWG_Reference/0306%20BERR%20Feasibility%20of%20mitigating%20the%20effects%20of%20wind%20farms%20on%20primary%20radar.pdf

[2] *Technical Information and Guidelines on the Assessment of the Potential Impact of Wind Turbines on Radio Communication, Radar and Seismoacoustic Systems*, Radio Advisory Board of Canada and Canadian Wind Energy Association, Version 8.0

Wind Farm Operation

How much power is produced?

We estimate that on average Gunn's Hill Wind Farm will produce a total of over 76,700,750 kilowatt hours (kWh)/year of clean, renewable electricity in each year of operation.

Who controls the wind farm?

We plan to have an operations and maintenance building near the project area to control the power generated and delivered into the existing electrical power grid.

What are the reasons for temporarily removing a wind farm from the power system?

Several events may require that the wind farm generation be removed from the power system, or taken offline, including regular maintenance, equipment repair, inclement conditions (too much wind or ice), or planned or unplanned issues in the downstream power grid.

Safety Measures

Wind farm operators work with local services groups to identify when responsibility for emergency responses is transferred to a specialized team trained for emergencies occurring above ground level. Local services such as ambulance, police and fire will coordinate efforts with wind farm operators to practice established emergency response and communication plans.

Decommissioning

The Feed-in Tariff or FIT contract at Gunn's Hill is valid for 20 years from the time of full commercial operation. After 20 years, the wind farm is either decommissioned or re-powered with updated technology under a new power purchase agreement.

When a farm is decommissioned, the goal is to return the land to its pre-construction state, and is the responsibly of the wind farm owner. Project infrastructure, including roads, cables, turbines, foundations and substation must be disassembled and removed from the site. To prepare for the removal of equipment, lay-down areas at the base of each turbine are reconstructed. Cranes are brought in to disassemble the turbines and substation and to load transport trucks for removal. Wherever possible, equipment and construction materials such as excess gravel are recycled, sold or given away.

Rehabilitation of project areas is completed and vegetation communities are reinstated where they have been disturbed.

Sound Regulations and Setbacks

Sound regulations

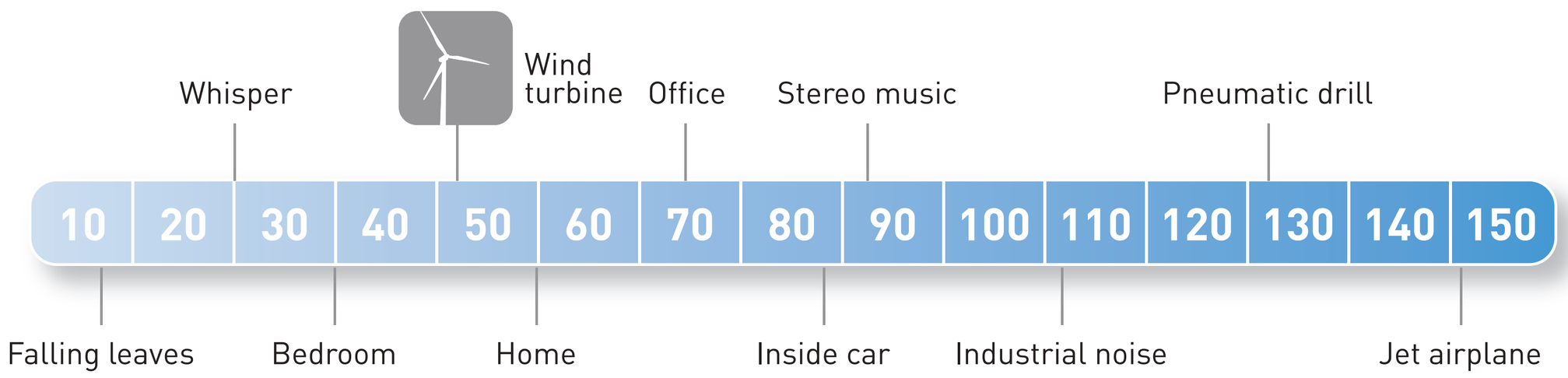
The Ontario Ministry of Environment has established guidelines for sound level limits of wind farms[1]. The Developer must show that the proposed project will not create a noise output of more than 40 A-weighted decibels (dBA) in a 'predictable worst-case scenario' at any non-participating receptor.

What is a receptor?

Receptors or non-participating points of reception at the Gunn's Hill Wind Farm are residential dwellings of individuals and families who are not project participants. All receptors marked for this project have been designated as rural and are presented on the site plan diagrams.

What is 40 dBA?

This sound level is similar to that of a running refrigerator or a quiet library.



Noise assessment

Zephyr North Ltd. was engaged by Prowind to complete a study of the potential sound output of the proposed Gunn's Hill Wind Farm. A maximum sound output of 106.4 dBA was adopted as the maximum output level of any turbine considered for this project. Only turbines with maximum sound output equal to or less than 106.4 dBA were candidate turbines for this project. This ensures the sound output will remain within the regulated limits for all receptors.

Setback regulation

Turbines must be situated at least 550 m from homes, although in many cases, the noise regulations have imposed greater restrictions and turbines are further than this minimum distance.

Turbines must be far enough from property lines for safety of neighbouring residents and businesses. The minimum property line setback is the turbine height (excluding blades). The regulation permits for this minimum setback to be reduced to blade length plus 10 m if it can be shown that the proposed location will not result in adverse impacts on nearby infrastructure, properties or land use activities.

[1] Ontario MOE publications NPC-232 – Sound Level Limits for Stationary Sources in Class 3 Areas (Rural), MOE Noise Guidelines for Wind Farms (October 2008) and in Ontario O.Reg 259/09 and proposed amendments.

Health and Wind Power

- Many studies have been conducted world-wide to examine the relationship between wind turbines and possible human health effects (e.g., audible/ inaudible noise, shadow flicker, electromagnetic fields (EMF)).
- **Audible / Inaudible Noise:** Ontario's Chief Medical Officer of Health (May 2010) conducted a review of the scientific literature related to wind turbines and public health and found they caused no direct health effects.

> "While some people living near wind turbines report symptoms such as dizziness, headaches, and sleep disturbance, the scientific evidence available to date does not demonstrate a direct causal link between wind turbine noise and adverse health effects. The sound level from wind turbines at common residential setbacks is not sufficient to cause hearing impairment or other direct health effects, although some people may find it annoying."
>
> *Dr. Arlene King*
> *Ontario Chief Medical Officer of Health*

- **Shadow flicker:** Scientific evidence suggests that shadow flicker from wind turbines does not pose a risk of photo-induced seizures; modern wind turbines simply don't rotate at a speed that has been linked to this condition (generally less than 20 rpm vs. over 60 rpm).
- **EMF:** Health Canada (2010) has stated: "You do not need to take action regarding daily exposures to electric and magnetic fields at extremely low frequencies. There is no conclusive evidence of any harm caused by exposures at levels found in Canadian homes and schools, including those located just outside the boundaries of power line corridors."
- Overall, health and medical agencies agree that when sited properly, wind turbines are not causally related to adverse effects[1]. Reports of annoyance by people living around wind turbines appear to be more related to variables like personal attitude and whether a person can see a turbine from their home and not a turbine-specific variable like noise.

> "Ontario doctors, nurses, and other health professionals support energy conservation combined with wind and solar power – to help us move away from coal"[2].

- Scientists and medical experts around the world continue to publish research in this area. In fact, Health Canada will be undertaking a study of wind turbine projects across the country, with results expected in 2014. It is important to note that Health Canada has not called for a moratorium on new wind projects across Canada while they undertake their research.
- Through our health consultants, Prowind is committed to keeping informed on this issue.

[1] Chatham-Kent Public Health Unit, 2008; Australian Government, National Health and Medical Research Council, 2010; Australian Government, 2011; Massachusetts Department of Environmental Protection (MassDEP) and Massachusetts Department of Public Health (MDPH), 2012.

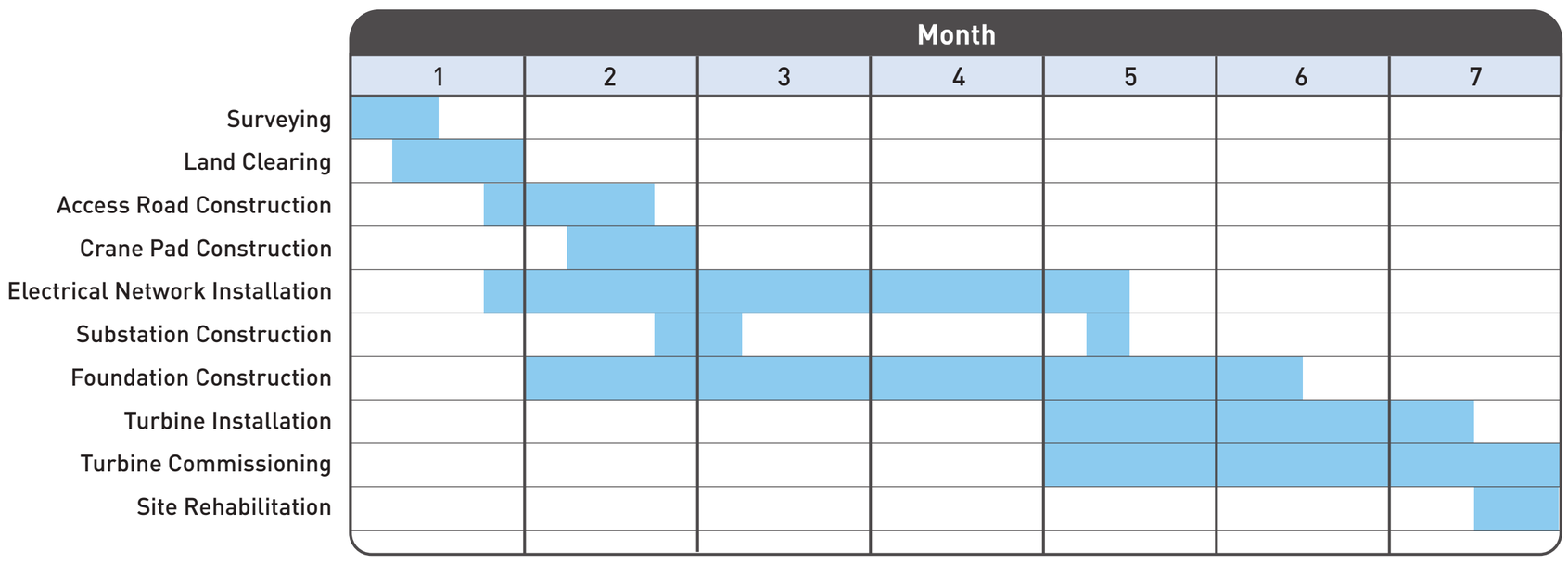
[2] Ontario College of Family Physicians, Registered Nurses Association of Ontario, Canadian Association of Physicians for the Environment, Physicians for Global Survival, the Asthma Society of Canada, and the Lung Association.

Construction Activities

There are three main components to construction:

1. Preparation of the land: removal and re-distribution of topsoil, excavation and removal of sub-surface earth;
2. Construction and installation of the wind facility: source local suppliers where possible for construction materials and labour; and
3. Site rehabilitation: restore ecosystem attributes and associated vegetation communities to pre-development conditions. All temporary structures and facilities are removed and the lands are returned to their pre-construction state. Damaged tile drains are repaired and construction debris is removed.

Duration



Construction is expected to take between six and eight months, starting fall 2013. Load restrictions on municipal roads from March to May will be respected.

Access road construction

Each turbine requires an access road to allow construction traffic and delivery of infrastructure. Access roads will be comprised of pressed gravel and will be built to a width of 6 m. Large delivery trucks must be able to complete wide turns to enter the work site – a temporary turning area with a radius of approximately 43 m is planned for each road entrance. Roads will be maintained through the life of the project for regular maintenance and emergency access.

Buried and overhead electrical cables

Electrical cables buried in fields are placed more than 1 m below the surface to permit farming activities to continue.

Overhead electrical cables will run from the substation along Firehall Road to Middletown Line, and continue south on Middletown Line for approximately 950 m. Overhead lines will connect the project to the existing Hydro One grid. Hydro poles will be installed from the substation to the Woodstock transformer station located off of South Street, in the City of Woodstock. Where possible, existing poles will be shared – this will likely require upgrades to the hydro poles in order to accommodate the new wires. Hydro One will coordinate upgrades to existing poles.

Substation

The substation contains the control system of the wind farm as well as an electrical transformer to convert the power to 27.6 kilovolt (kV) to match the distribution voltage on the existing power line. The substation will be fenced for security and safety purposes.

Turbine foundation

The foundation is a steel-reinforced concrete base that is poured into prepared ground at the base of the turbine. Up to 102 cement truckloads are required to deliver concrete for each foundation. Foundations will take approximately eight weeks to prepare, followed by five weeks of curing before turbines can be assembled.

Turbine delivery and erection

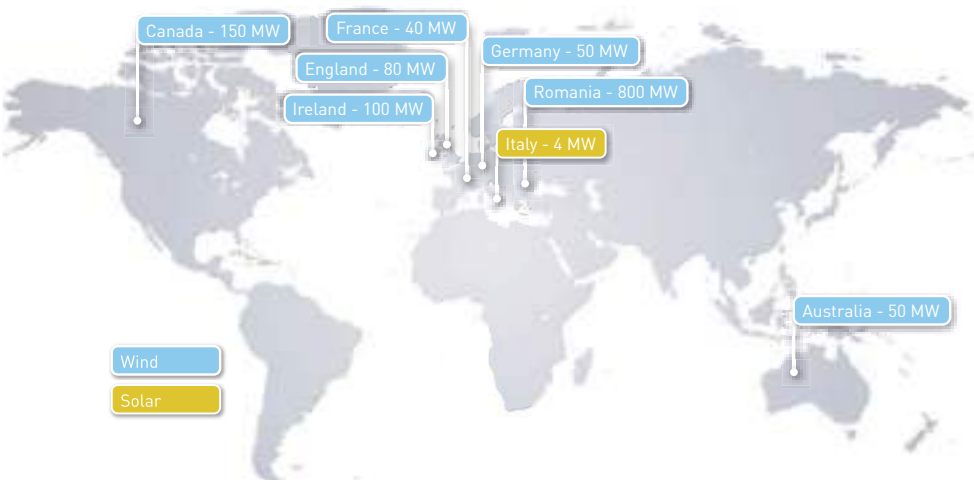
Turbines arrive in several pieces on flatbed trailer trucks and are delivered directly to the lay-down area around each planned turbine location. Large cranes are used to pull tower pieces into position, and to assemble and raise the nacelle and blades into position. As many as three cranes will be used to assemble each turbine.

Appendix D6

Public Open House (October 2012) Fact Sheet

Prowind

Global development projects



About Prowind

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Developing for the future

We develop and operate power plants driven by renewable sources. We have over 10 years' experience planning, financing, constructing, building and operating power plants that produce renewable energy. Wind energy is our focus, and we plan to develop and operate wind farms across Canada for years to come.

Development approach

We develop renewable power generation in close consultation with landowners. Our responsible approach to development has gained us a reputation regionally, nationally and internationally as trustworthy and competent.

The construction of a wind farm is not only assembling a group of wind turbines - it is building relationships with the community and the landowners that will last for generations.

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Prowind CANADA

Gunn's Hill Wind Farm

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Project Schedule

Fall 2012	Initial public meeting in Woodstock Draft REA for public review
Winter 2013	Final public meeting
Summer 2013	REA decision
Fall 2013	Construction begins
Summer 2014	Wind farm commissioning

Turbine Specifications

Make and model	GE 2.5xl
Maximum rated output	2.5 MW per turbine
Tower and blade height	≤ 158.3m
Rotor diameter	≤ 120 m
Blade sweep area	≤ 11,310 m^2
Range of rotational speeds	5-14 RPM
Approximate foundation diameter	18 m
Maximum quantity required for Gunn's Hill Wind project	10

Location

City of Woodstock and Township of Norwich, Oxford County

Capacity

25 megawatts (MW)

Wind turbines

10 General Electric turbines

Power purchase agreement

Ontario Power Authority

Project area

18 hectares

Full commercial operation

Summer 2014

Appendix D7

Public Open House (April 2013) Display Boards

Welcome

to the Public Open House for the Gunn's Hill Wind Farm Project

Prowind is proposing to develop the Gunn's Hill Wind Farm (the Project) on privately owned, agricultural land as well as municipal right-of-ways (electrical distribution lines only) in the Township of Norwich and the City of Woodstock in Oxford County, Ontario.

There are representatives from Prowind, Stantec and Intrinsik available to discuss the Project with you.

Purpose of the Meeting

- Present the findings of the Draft Renewable Energy Approval (REA) Reports.
- Update you on the status of the Project.
- Provide an overview of construction and operation, and mitigation measures to reduce any potential impacts.
- Answer any questions regarding the Draft REA Reports and the Project in general.
- Collect your input regarding the Project and potential impacts, for development of mitigation measures.

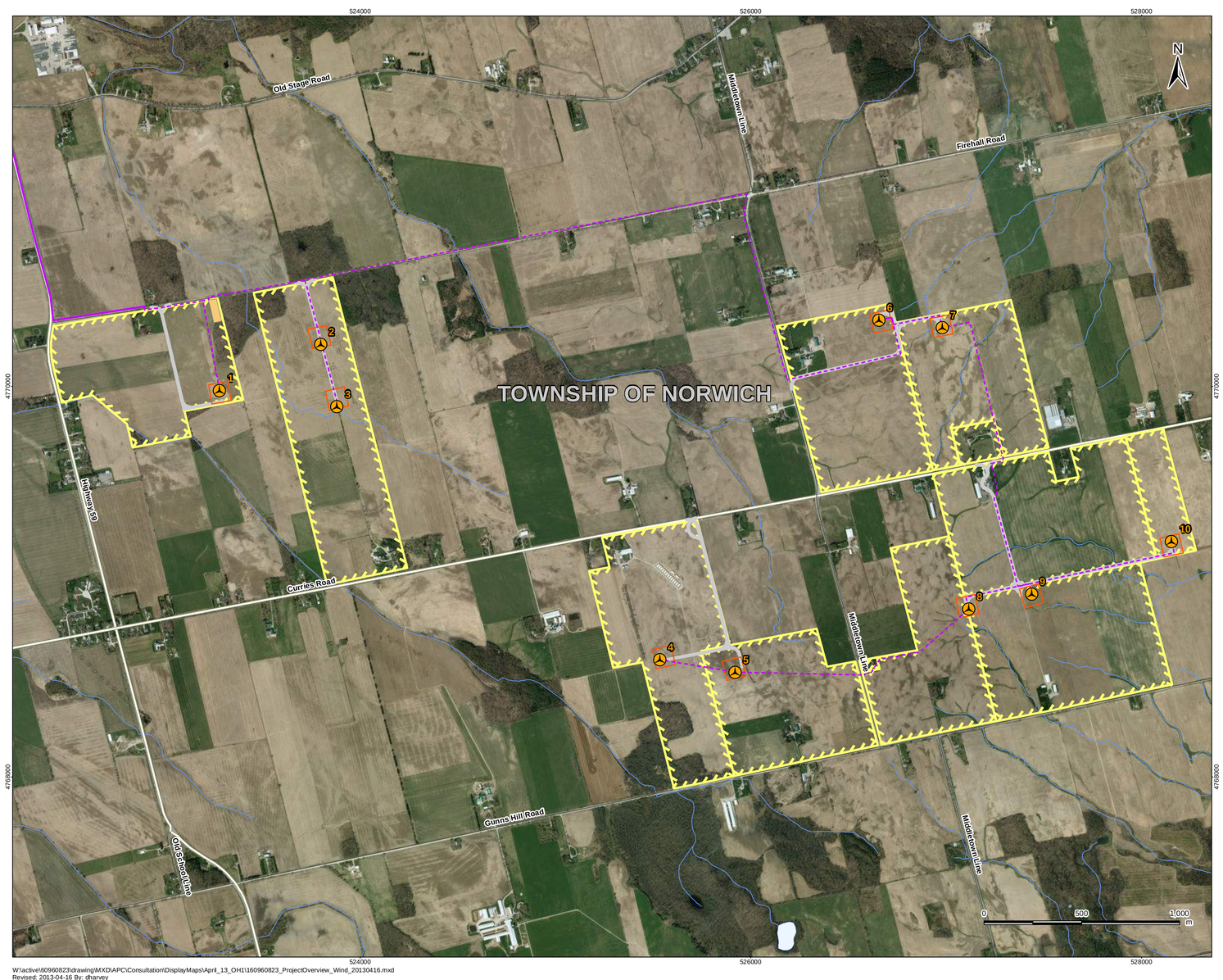
Who Are We?

Prowind Canada Inc. (Prowind) is a Canadian wind energy developer based in Hamilton, Ontario. It is a wholly owned subsidiary of Prowind GmbH, based in Osnabrück, Germany. Prowind's mandate is to create small-scale, renewable, zero-emission power generation. Prowind believes in distributed generation that has a minimum impact on the surrounding environment and landscape.

Project Overview

- The Project has been awarded a Power Purchase Agreement (FIT contract) with the Ontario Power Authority (July 2011).
- The preferred turbine model is Siemens SWT 3.0 113.
- The Project will include up to ten wind turbine generators. The total maximum installed nameplate capacity of all ten turbines will not exceed 25 MW.
- Other basic components include step-up transformers located adjacent to the base of each turbine (step up voltage from approximately 0.69 kV to 27.6 kV), a 27.6 kV underground collector system, fibre optic data lines, a non-Transformer substation, operation and maintenance building and/or storage shed (if required), and turbine access roads.
- Temporary components during construction include laydown areas at the turbine locations, crane pads, temporary parking, concrete wash ponds and construction trailers.
- As the project connects at distribution voltages, a 27.6 kV feeder line that is similar to existing lines will be used to connect into the local distribution system. The overhead lines will be owned and maintained by the proponent and installed on rented space on poles owned by Hydro One and Woodstock Hydro.
- All Project components are on privately-owned land (with signed lease agreements) and municipal rights of way (electrical distribution lines only).

Project Location



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Revised: 2013-04-16 By: dharvey

Legend

Proposed Project Components
- Turbine Location
- Collector Line (Overhead)
- Collector Line (Underground)
- Access Road
- Laydown Area
- Participating Properties
- Substation

Existing Features
- Highway
- Major Road
- Local Road
- Municipal Boundary
- Waterbody
- Watercourse

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2012.
3. Orthographic imagery provided by First Base Solutions © First Base Solutions, 2011. Imagery taken in Spring 2010.

Stantec

April 2013
160960823

Client/Project
Gunn's Hill
Pro Wind

Figure No.
1

Title
Project Overview-Wind Area

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Revised: 2013-04-17 By: dharvey

Legend

Proposed Project Components
- Turbine Location
- Collector Line (Overhead)
- Collector Line (Underground)
- Access Road
- Laydown Area
- Participating Properties
- Substation

Existing Features
- Highway
- Major Road
- Local Road
- Municipal Boundary
- Waterbody
- Watercourse

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2012.
3. Orthographic imagery provided by First Base Solutions © First Base Solutions, 2011. Imagery taken in Spring 2010.

Stantec

April 2013
160960823

Client/Project
Gunn's Hill
Pro Wind

Figure No.
1

Title
Project Overview-Distribution Line

Site Selection - Why Township of Norwich/ City of Woodstock in Oxford County, Ontario?

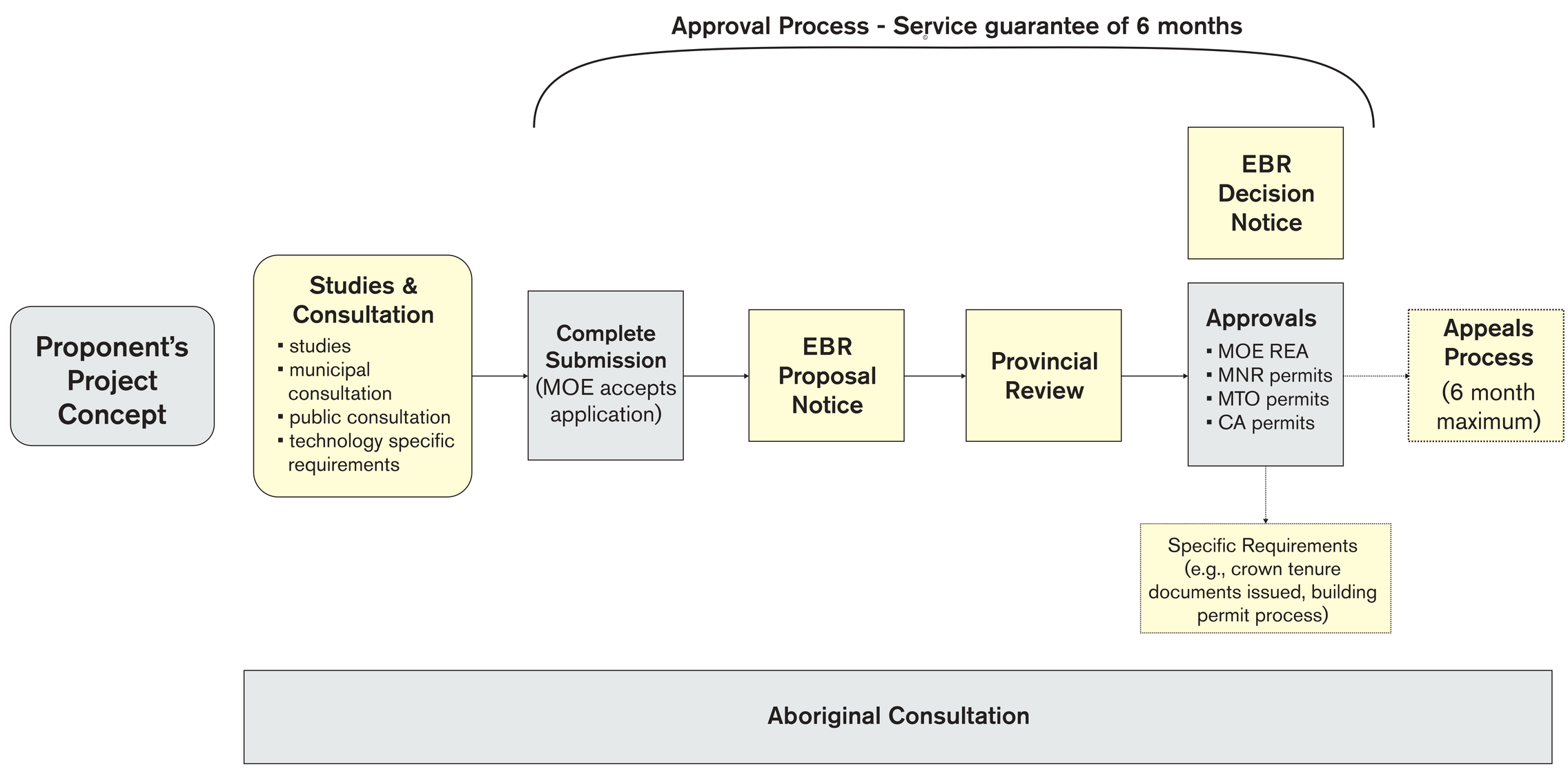
- Good wind regime
- Compatible land uses – agricultural land requiring a small footprint for Project components
- Landowner interest
- Electrical interconnection – the Project has an agreement with the Ontario Power Authority to feed power into the grid in this area
- Environment – to date, studies of local environmental features show that the Project will have low impact on wildlife and natural features
- Local economic benefit – jobs, municipal tax revenue, keeps farmers farming as supplemental income on participating lands
- Site access – good existing road infrastructure
- Accessible topography

Wind Turbine Details

Siemens SWT 3.0 113 Family - Wind Turbine Specifications	
Operating Data	Specification
General	
Manufacturer	Siemens
Model	SWT 3.0 113
Name plate capacity (MW)	Maximum of 2.5 MW
Cut-in wind speed (m/s)	3-5 m/s (10.8 – 18 km/hr)
Cut-out wind speed (m/s)	25 m/s (90 km/hr)
Frequency	50 or 60 Hz
Sound power (dBA)	102.5 dBA
Tonal audibility	<2dB
Rotor	
Blade length (m)	56.5 m
Rotor diameter (m)	113 m
Rotor swept area (m^2)	10,000 m^2
Rotational speed (rpm)	6.0 – 15.5 rpm
Tower	
Hub height (m)	99.5 m
Maximum total turbine height (m)	156 m

Renewable Energy Approval Process

- The Green Energy and Green Economy Act (GEA), and related amendments to other provincial legislation, received Royal Assent in the Ontario Legislature on May 14, 2009.
- The Project will require a Renewable Energy Approval (REA) according to Ontario Regulation 359/09 (REA under Part V0.1 of the Act) under the Environmental Protection Act. This regulation became law on September 24, 2009 and replaces the previous Ontario Environmental Assessment Act process for wind projects.
- All non-REA approvals (Conservation Authorities and Municipal) have to be obtained prior to construction.



Source: Ministry of the Environment

Renewable Energy Approval Process - Setbacks

- A key component of the Renewable Energy Approval (REA) process is the establishment of common setbacks for all renewable energy facilities in the Province.
- Where Project related infrastructure will be located within the setback distances for environmental features, additional analysis (i.e., Environmental Impact Study) will be provided in the REA application and summarized in the final Project Description Report.
- Key setbacks that will be applied throughout the design of the Project are as follows:

Regulated Setbacks

Feature	Setback Distance
Non-participating noise receptor	550 m (from turbine base)
Public road right-of-way and railway right-of-way	Turbine blade length + 10 m (from turbine base)
Property line	Turbine height (excluding blades) (from turbine base)
Provincially significant wetland	120 m
Provincially significant ANSI (Earth Science)	50 m
Provincially significant ANSI (Life Science)	120 m
Significant woodland	120 m
Significant wildlife habitat	120 m
Lake or a permanent or intermittent stream	120 m from the average annual high water mark
Seepage area	120 m

Renewable Energy Approval Process - Reports

The following reports have been prepared in draft and will be submitted in final version as part of the REA application:

- Project Description Report
- Construction Plan Report
- Design and Operations Report
- Wind Turbine Specifications Report
- Natural Heritage Assessment & Environmental Impact Study (includes technical studies for wildlife and wildlife habitat)
- Stage 1 and 2 Archaeological Assessment Reports
- Heritage Assessment Report
- Water Assessment and Water Body Report
- Decommissioning Plan Report
- Consultation Report (will be prepared for final submission)

All reports, with the exception of the Consultation Report, have been made available in draft form for public review and comment at least 60 days prior to the Final Public Meeting (February 21, 2013). Notification of the release of the draft reports was provided by mail, in newspapers and on the Project website www.prowind.ca.

Project changes since REA documents were made public:

- Turbines will be individually rated to a maximum of 2.5 MW
- Sound power level will be reduced to 102.5 dBA (or lower)

Natural Heritage Assessment (NHA)

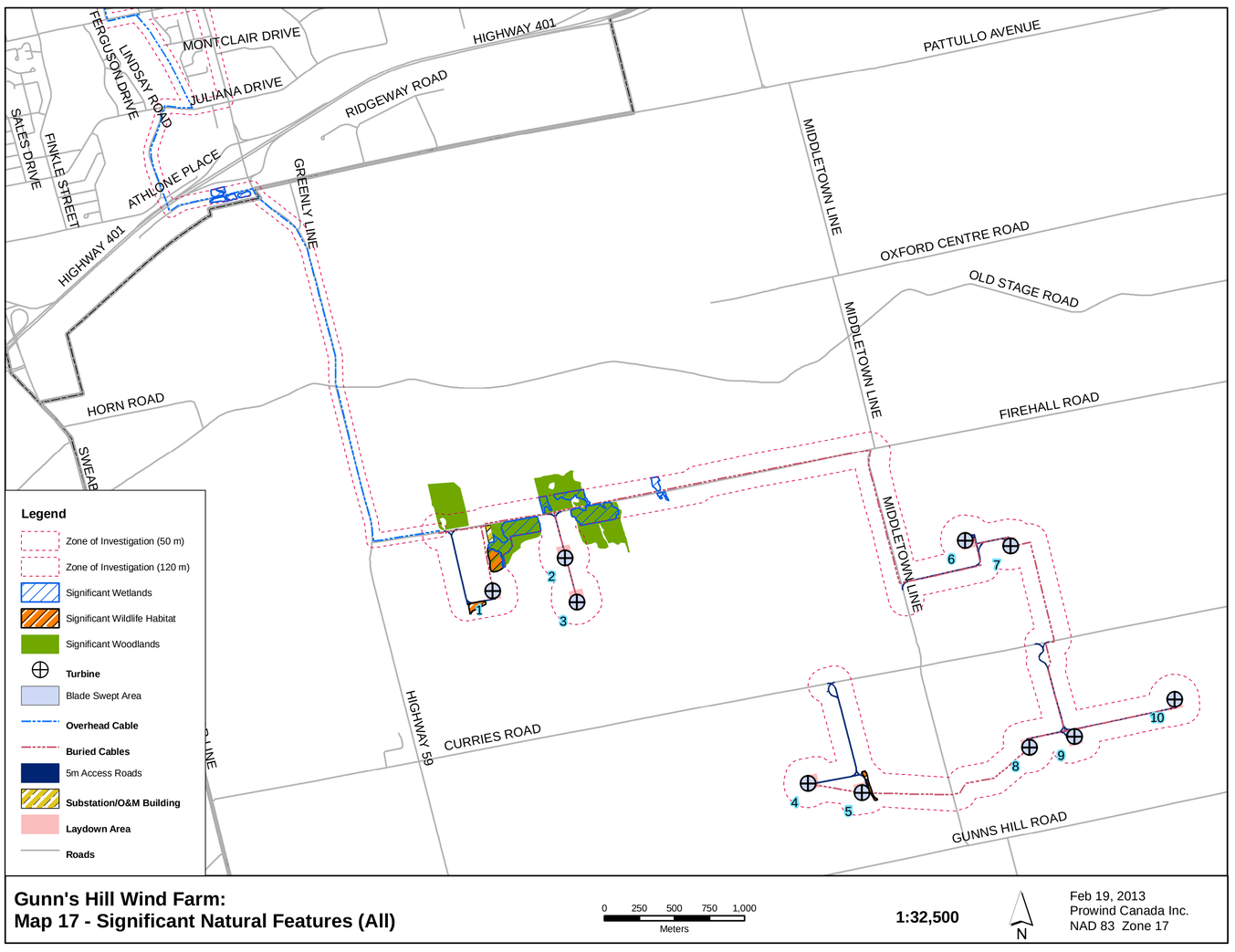
The Project Location (120 m from infrastructure) was crossed on foot and physically inventoried. Permission was granted by participating land owners to access all land parcels where components of the project are proposed. Any non-participating lands that were encompassed by the 120 m boundary were not accessed without land owner permission. In the case of land owner permission not being granted, a visual survey from the closest participating property boundary was performed.

NHA studies included a review of vegetation, woodlands, wetlands, wildlife, and wildlife habitat.

Based on the evaluation of significance, the following significant natural features were identified in or within 120 m of the Project Location:

- Four significant woodlands;
- One Provincially Significant Wetland – Cedar Creek Swamp (note: all other wetlands were assumed to be significant); and
- Candidate Significant Wildlife Habitat (amphibian breeding habitat and bat maternal roost habitat).

Modifications were made to site Project components as far as possible from features identified as significant.



MNR has prescriptive guidelines for post-construction monitoring of bird and bat mortality, including thresholds. Mandatory mitigation is required for facilities that exceed thresholds which may include temporary turbine shutdown. The Environmental Effects Monitoring Plan includes post-construction monitoring for birds and bats.

Birds and Bats

Average Mortality in Ontario

- 2.5 birds/turbine/per year, and
- 4 to 14 bats/turbine/year

Critical Thresholds(as determined by MNR):

Birds

- 14 birds/turbine/year
- 0.2 raptors/turbine/year (all raptors)
- 0.1 raptors/turbine/year (provincially tracked raptors)

Or, single event of:
> 10 birds at any one turbine
> 33 birds at multiple turbines

Bats

- 10 bats/turbine/year

Monitoring

- **Monitoring will be undertaken 2X per week for 3 years** (additional monitoring if effects are observed and if contingency plans are enacted)

Bird and bat deaths caused by wind turbines

	Birds (turbine/year)	Bats (turbine/year)
MNR Thresholds	14[1]	10[2]
Prince Wind Farm	1.33[3]	3.59[3]
Ontario Average	2[1]	N/A
U.S. Average	2.3[4]	11.4[5]

[1] Ontario Ministry of Natural Resources (OMNR). 2011. Birds and Bird Habitats Guidelines for Wind Power Projects. December 2011.
[2] Ontario Ministry of Natural Resources (OMNR). 2011. Bats and Bat Habitats Guidelines for Wind Power Projects. July 2011.
[3] Walmsley C., L. Keable, and D. Stephenson. 2009. Bird Behavior and Mortality Monitoring: Prince Wind Farm. Poster presentation: Canadian Wind Energy Association Annual Meeting.
[4] NWCC 2004. Wind Turbine Interactions with Bird and Bats: A Summary of Research Results and Remaining Questions. National Wind Coordinating Committee, Nov. 2004. Available Online at: www.nationalwind.org
[5] Barclay,R. and E. Baerwald. 2010. Bats and Wind Energy. Oral Presentation –Ontario Bat Monitoring Workshop for Wind Power Projects, London, Ontario, June 2010.

Project Schedule Overview

Approximate Date	Milestone
February 2010	Public Meeting #1 - Township of Norwich
October 2012	Public Meeting #1 - City of Woodstock
February 2013	Draft REA Reports to Public
WE ARE HERE April 2013	Public Meeting #2
May 2013	REA submission to MOE
Q1 2014	Start of Construction
Q3 2014	Commercial Operation Date (COD)
Q3 2034	Repowering/Decommissioning

Construction

- Typically begins 6-12 months prior to COD.
- Areas that would be directly impacted:
  - **Turbine locations:** Each turbine will be installed on top of a foundation. A typical turbine foundation is roughly 20 m in diameter, with a poured-in-place reinforced concrete foundation, buried to a depth of 2-3 m.
  - **Crane pads:** Crane platforms adjacent to each turbine location, measuring approximately 40 m X 20 m.
  - **Access roads:** 5.6 km of new or upgraded gravel access roads which will be 6m wide during construction and reduced to 5 m during operation.
  - **Collector lines:** New 27.6 kV collector lines (underground and overhead) from step-up transformers at the base of each turbine to the substation.
  - **Distribution substation:** Built within an approximately 40 m x 80 m cleared area, located on private property.
  - **Operation and Maintenance Building:** Located within the above noted 40 m x 80 m cleared area and built to be approximately 16 m x32 m. Would host office space, parking for approximately 4 vehicles, tools, spare parts and equipment for the wind farm. Designed in accordance with the Ontario Building Code. Water will be supplied to the facility from a new on-site well and sewage will be handled by a new septic system installed on-site.

Operations and Maintenance

- The Developer may hire a specialized Contractor to undertake on-going operations and maintenance.
- Operation activities include daily monitoring of the wind turbines and function of the substation, maintenance activities, and monitoring of meteorological data.
- An on-line system will monitor the Project 24 hours a day to identify any issues for quick response, which is monitored by trained personnel 365 days a year.
- An Emergency Response and Communications Plan will be developed prior to operation in conjunction with the turbine manufacturer.

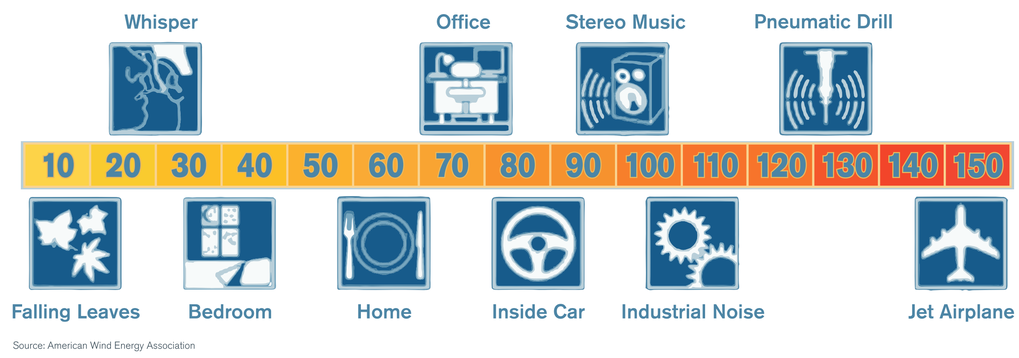
Decommissioning

- Project components are expected to be in service for the term of the 20 year Ontario Power Authority Feed-In Tariff contract. At that point, a decision will be made to continue operations, update equipment (called ‘repowering’), or decommission.
- Decommissioning involves removal of all Project components for reuse or recycling, and restoring the land to pre-construction conditions, using relevant environmental protection and mitigation measures.
- The Developer is responsible for all aspects of the decommissioning of the Project including the associated costs.

Environmental Noise Impact Assessment

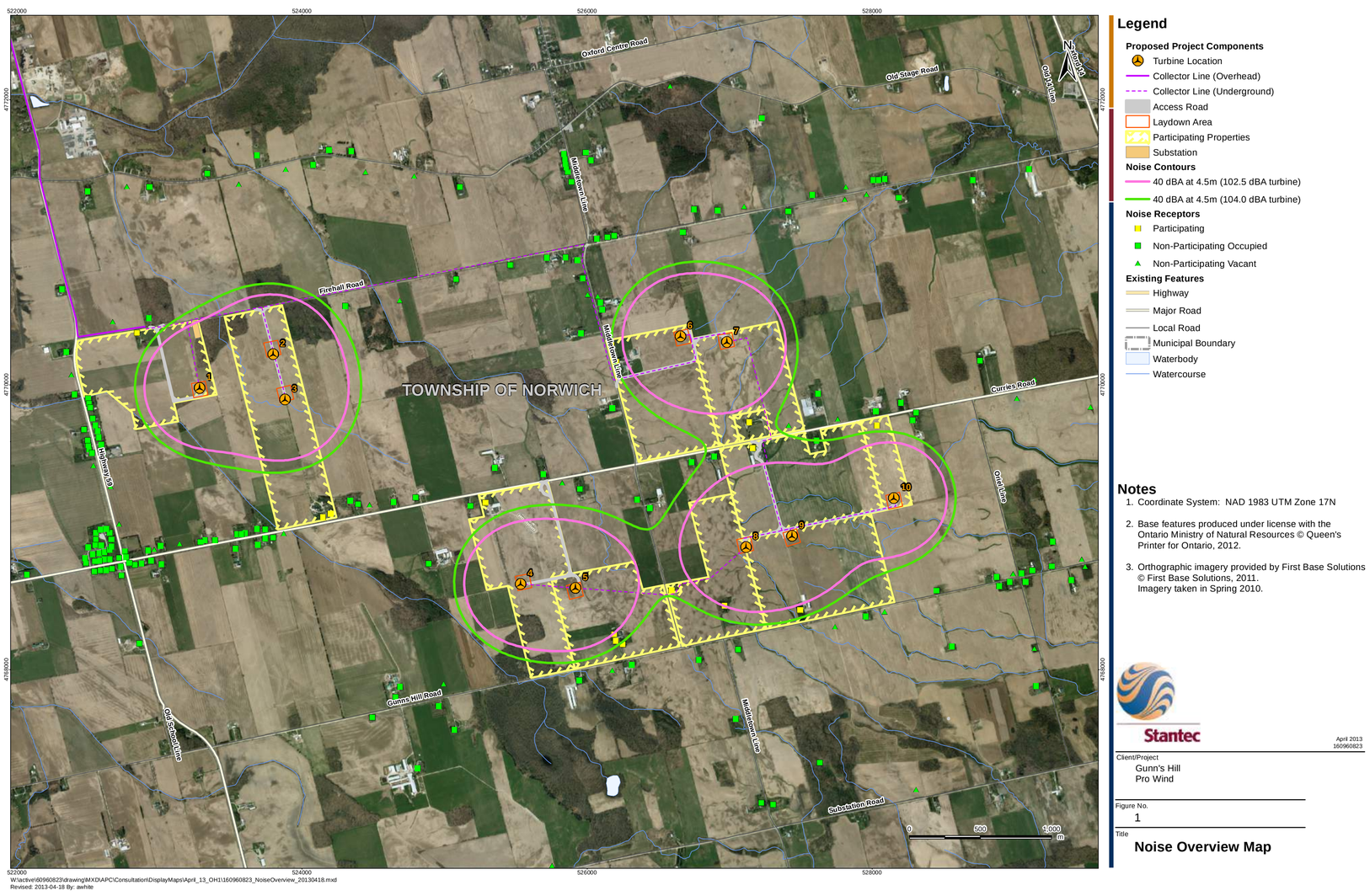
A Noise Assessment Report has been completed for the Project to ensure it complies with the MOE requirements.

The local area is considered a rural (NTP Class 3) site by the MOE – maximum allowable sound level of 40 dBA for quiet night time periods, and 45 dBA for quiet daytime periods. Current MOE regulations require a turbine to be 550m or more from a non-participating receptor (for this area, a residential dwelling occupied by individuals or families who do not have an agreement with Prowind to host Project infrastructure on their property), to achieve a maximum noise level of 40 dBA.



Key Findings:

- Sound levels are predicted to be at or below the 40 dBA minimum criterion for all non-participating receptors.
- All turbines sited more than 550 m from all non-participating receptors.



- The Noise Assessment Report concluded that sound to be produced by the Project will be within the limits established by the MOE at all non-participating noise receptors.

Ensuring Health & Safety

Construction & Decommissioning

- The Traffic Management Plan will identify and deal with specific traffic planning issues including management of traffic and the delivery of materials.
- Transportation planning and safety measures to be implemented during construction.
- Land access to construction sites will be limited to minimize public health and safety concerns.
- An Emergency Response and Communications Plan will be developed, addressing spill contingency and response plans, spill response training, notification procedures, and necessary cleanup materials and equipment.

Health and Wind Power

- Many studies have been conducted world-wide to examine the relationship between wind turbines and possible human health effects (e.g., audible/inaudible noise, shadow flicker, electromagnetic fields (EMF)).

- **Audible/Inaudible Noise:** Ontario's Chief Medical Officer of Health (May 2010) conducted a review of the scientific literature related to wind turbines and public health. The review concluded that:

  – *"while some people living near wind turbines report symptoms such as dizziness, headaches, and sleep disturbance, the scientific evidence available to date does not demonstrate a direct causal link between wind turbine noise and adverse health effects. The sound level from wind turbines at common residential setbacks is not sufficient to cause hearing impairment or other direct health effects, although some people may find it annoying."*

- **Shadow Flicker:** Scientific evidence suggests that shadow flicker from wind turbines does not pose a risk of photo-induced seizures; modern wind turbines simply don't rotate at a speed that has been linked to this condition (generally less than 20 rpm vs. over 60 rpm).

- **EMF:** Health Canada (2012) has stated: *"Health Canada does not consider that any precautionary measures are needed regarding daily exposures to EMFs at ELFs. There is no conclusive evidence of any harm caused by exposures at levels found in Canadian homes and schools, including those located just outside the boundaries of power line corridors"*

Overall, health and medical agencies agree that when sited properly, wind turbines are not causally related to adverse effects*.

- Reports of annoyance by people living around wind turbines appear to be more related to variables like personal attitude and whether a person can see a turbine from their home and not a turbine-specific variable like noise.

  – *"Ontario doctors, nurses, and other health professionals support energy conservation combined with wind and solar power – to help us move away from coal"**.*

- Scientists and medical experts around the world continue to publish research in this area. In fact, Health Canada will be undertaking a study of wind turbine projects across the country, with results expected in 2014. It is important to note that Health Canada has not called for a moratorium on new wind projects across Canada while they undertake their research. Through our health consultants, Prowind Canada is committed to keeping informed on this issue.

*Chatham-Kent Public Health Unit, 2008; Australian Government, National Health and Medical Research Council, 2010; Australian Government, 2011; Massachusetts Department of Environmental Protection (MassDEP) and Massachusetts Department of Public Health (MDPH), 2012. **Ontario College of Family Physicians, Registered Nurses Association of Ontario, Canadian Association of Physicians for the Environment, Physicians for Global Survival, the Asthma Society of Canada, and the Lung Association.

Property Values

The RE/MAX Market Trends Report - Farm Edition 2011 released September 12, 2011, found that agricultural property value has increased throughout Ontario, including areas such as Chatham-Kent where wind turbines have been installed for some time.

Other recent studies have concluded:

> "In the study area, where wind farms were clearly visible, there was no empirical evidence to indicate that rural residential properties realized lower sale prices than similar residential properties within the same area that were outside of the viewshed of a wind turbine."

Canning Consultants Inc. and John Simmons Realty Ltd. (February 2010). Wind Energy Study - Effect on Real Estate Values in the Municipality of Chatham-Kent. Report prepared for the Canadian Wind Energy Association. Prepared for the Canadian Wind Energy Association in accordance with the Practice for the Appraisal Institute of Canada. Canadian Uniform Standards for Professional Appraisal

> "Research collected data on almost 7,500 sales of single family homes situated within 10 miles of 24 existing wind facilities in nine different US states. The conclusions of the study are drawn from eight different hedonic pricing models, as well as both repeat sales and sales volume models.
>
> The various analyses are strongly consistent in that none of the models uncover conclusive evidence of the existence of any widespread property value impacts that might be present in communities surrounding wind energy facilities. Specifically, neither the view of the wind facilities, nor the distance of the home to those facilities, is found to have any consistent, measurable, and statistically significant effects on home sale prices.
>
> Although the analysis cannot dismiss the possibility that individual homes or small numbers of homes have been, or could be negatively impacted, it finds that if these impacts do exist, they are either too small and/or too infrequent to result in any widespread, statistically observable impact."

Hoen, B., R. Wiser, P. Cappers, M. Thayer, and G. Sethi (December 2009). The Impact of Wind Power Projects on Residential Property Values in the United States: A Multi-Hedonic Analysis. Ernest Orlando Lawrence Berkeley National Laboratory. Prepared for the US Office of Energy Efficiency and Renewable Energy. Prepared for the US Office of Energy Efficiency and Renewable Energy using a Hedonic Pricing Model used by economists and real estate professionals to assess the impacts of house and community characteristics on property values by investigating the sales prices of homes.

Building the Local Economy and Supporting Community

Creating Jobs

- Turbine blades will be manufactured in Tillsonburg.
- Local jobs will be created during construction, and local businesses will be supported through Project purchases.
- The Developer and its contractors will employ maintenance staff in southwestern Ontario.
- Locally-provided trades could include heavy equipment operators, truck drivers, pipefitters, electricians, ironworkers, millwrights and carpenters.
- The Project assists in Ontario's goal to create over 50,000 "green-collar" jobs.

Supporting Farmers and the Municipal Economy

- Landowners with Project infrastructure on their property will receive lease payments from the Project owners.
- Farm operations can continue adjacent to turbines and access roads.
- Following decommissioning, agricultural areas will be restored, and normal farming practices can resume.
- Subject to landowner approval and private property restrictions, hunting and other recreational uses can continue adjacent to turbines and access roads.
- Tax payments to the municipality, road allowance agreement.
- An annual $25,000 community benefit fund will be set up to contribute to local projects.

The Wind Industry Then & Now

ICE THROW – Modern turbines utilize a combination of blade heating, weight imbalance sensing, and power performance monitoring to prevent and mitigate ice throw.

SHADOW FLICKER – Shadow flicker, or recurring shadows, can only occur under certain conditions and is heavily mitigated by setbacks of 550 m and greater. Depending on a number of factors, including location, time of day/year and weather conditions, shadows may be produced by the sun shining behind a turbine. It is possible to calculate very precisely whether a flickering will fall on a given location near a wind project, and for how many hours a year. Should any complaints be received, they will be dealt with on an individual basis.

NACELLE FIRES – Modern turbines have braking mechanisms, temperature sensors, fluid protection, and electrical configurations that shut down the turbines when wind speeds are too high, or in the event of a short-circuit, reducing potential for electrical fires.

NOISE – Regulations require noise levels be taken into consideration. Ontario's minimum setbacks are used to ensure sound levels at the nearest residence do not exceed 40 dBA. This limit is consistent with the World Health Organization (WHO)'s guideline for the protection of public health from community noise. According to the WHO, this guideline is below the level at which sleep and health effects can occur.

The Wind Industry in Ontario

DOMESTIC CONTENT – All wind projects, powered after 2013 (including this Project) must have a minimum of 50% local labour or locally produced components. This ensures manufacturing, construction jobs and revenues are kept in Ontario.

DECOMMISSIONING – All costs of decommissioning or repowering sites are the responsibility of the Developer, as the Owner of the facility.

COSTS – The cost of wind energy is all inclusive, stable over the long term, and generally gets cheaper over time relative to inflation.

EFFICIENCY – A modern wind turbine produces electricity 70-85% of the time, but it generates different outputs depending on the wind speed. Over the course of a year it will generate about 35% of the theoretical maximum output. The wind farm will be a maximum 25 megawatt (MW) facility that will produce renewable electricity equivalent to what is used by approximately 6,250 homes per year.

SUBSIDIES – Unlike other forms of power, all up front capital/construction costs and studies are paid before power is produced, putting the cost on the Developer, NOT the consumer. Consumers will never see debt repayment charges thanks to the electrical capability of modern wind turbines, and the grid will become more stable thanks to new transmission infrastructure built by Developers.

PRESERVING AGRICULTURAL AREAS – Income from turbines allows farmers to keep their land and can prevent non-agricultural development by allowing farms to prosper.

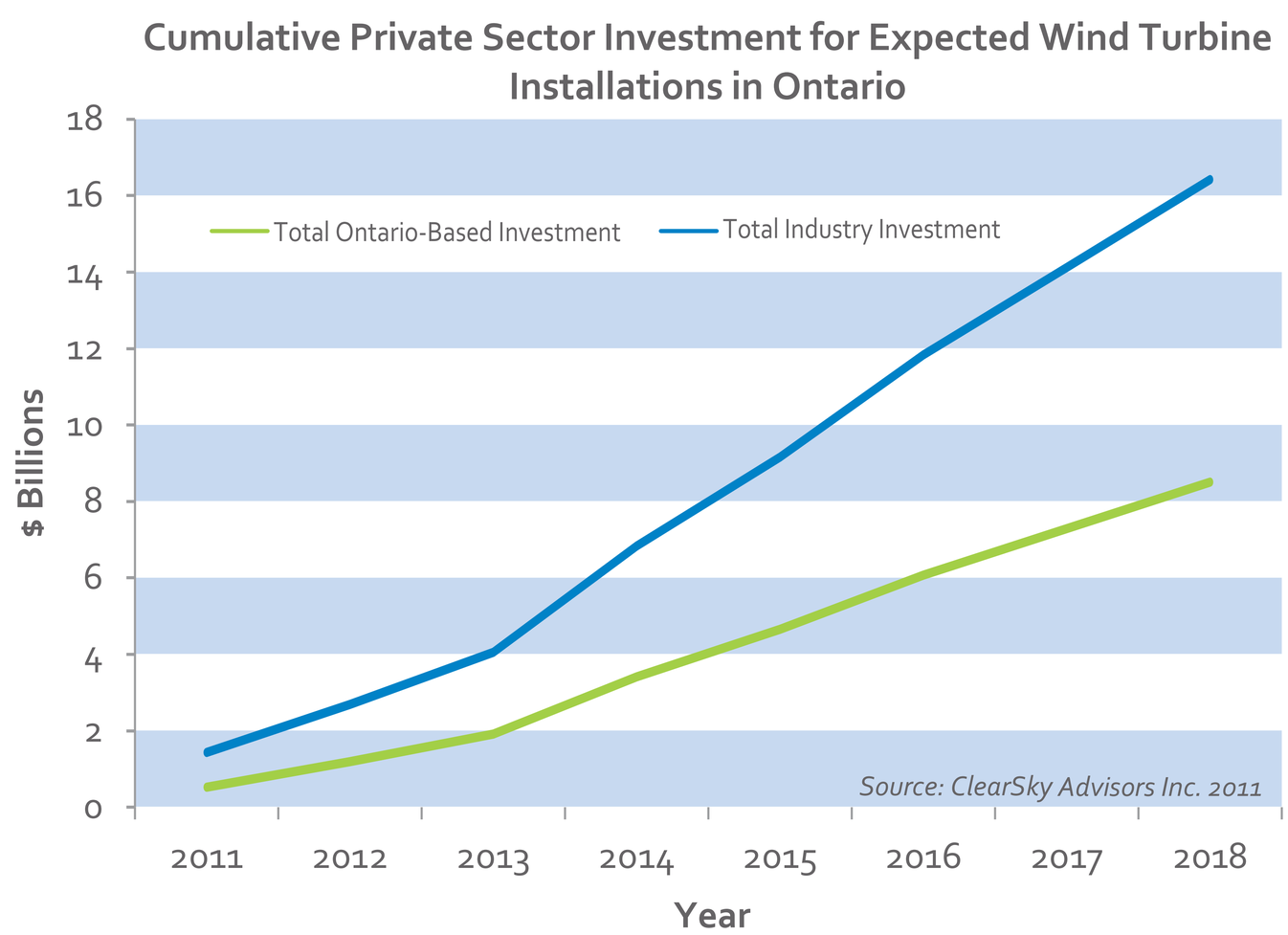
TOO MUCH POWER – Ontario currently has a small surplus of electricity due to the falling demand from the restructuring of our economy and conservation efforts. This surplus is only temporary. All of our coal plants are being phased out (2015) and all of our nuclear plants will need refurbishing. Removing these energy sources from the grid will require new power sources to be in place. Wind energy is part of a balanced energy mix.

Economic Opportunities created by the Renewable Energy Sector

The wind energy sector in Ontario will generate a significant amount of both electricity and economic activity over the course of 2011 through 2018. Specifically, during this timeframe, the sector is expected to:

- Install over 5.6 GW of wind energy capacity, bringing Ontario's total wind energy capacity to 7.1 GW by 2018;
- Create 80,328 job years (Person-Years of Employment or PYE);
- Attract $16.4 billion of private investments of which $8.5 billion will be invested locally in Ontario; this investment is entirely private investment, and is only to be paid back upon the production of power over the lifespan of the turbines; and
- Contribute over $1.1 billion of revenue to local Ontario municipalities and landowners in the form of taxes and lease payments over the 20-year lifespan of projects installed in 2011-2018.

(Source: The Economic Impacts of the Wind Energy Sector in Ontario 2011-2018; May, 2011)



(Source: The Economic Impacts of the Wind Energy Sector in Ontario 2011 – 2018; May, 2011)

We Want Your Feedback

Please share your questions and comments with us by filling out a questionnaire.

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Website: www.prowind.ca

Copies of the display boards from the Public Open House and the Draft Project Reports are available on the website.

Comments received no later than May 1st 2013 will become part of the REA submission. Prowind will still respond/track any comments received after this date.

Appendix D8

Public Open House (April 2013) Fact Sheet

Gunn's Hill Wind Farm

Final Public Meetings - April 23 and 24, 2013

About Prowind

Prowind Canada Inc. is a Canadian-owned company that develops and operates power plants driven by renewable sources. We are located in Hamilton, Ontario and the parent company is located in Osnabruck, Germany. We have over10 years of experience in the renewable energy business.

Wind energy is our focus and we plan to develop and operate wind farms across Canada. Prowind has already developed 23 wind farms (over 110 MW) in Germany in agricultural settings. We believe that together, wind farms and agriculture make a great partnership.

The Gunn's Hill Wind Farm is proposed within the Township of Norwich and the City of Woodstock, near the communities of Curries and Oxford Centre. The wind farm will be a maximum 25 megawatt (MW) facility that will produce renewable electricity equivalent to what is used by approximately 6,250 homes per year.

The wind farm is a distribution connected project that will include up to 10 wind turbines, access roads, buried and overhead cabling, a non-transformer substation and an optional Operations and Maintenance building. Temporary construction infrastructure includes wider access roads, laydown areas at the base of each turbine, concrete wash ponds and a parking lot for construction vehicles.

These meetings are the final public meetings to be held for this project before the Renewable Energy Approval application is submitted to the Ministry of the Environment. Prowind will continue to be available throghout the development and operation of the wind farm to answer any questions.

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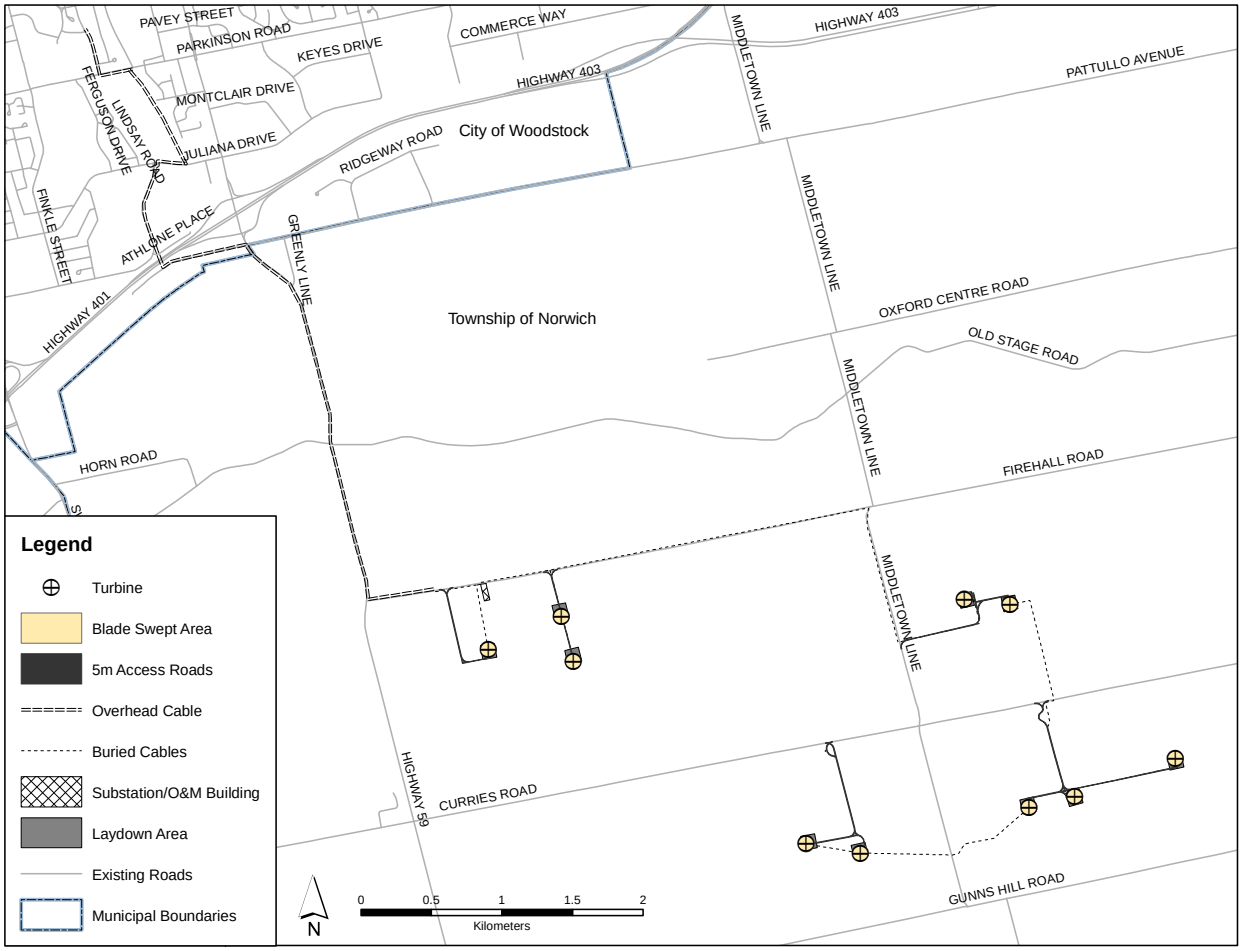
Gunn's Hill Wind Farm Layout



Project Timeline

Feb 2010	Initial Public Meeting in Norwich
Oct 2010	Initial Public Meeting in Woodstock
Feb 2013	Draft REA Reports to Public
Apr 2013	**Final Public Meetings**
May 2013	REA Submission to the MOE
Q1 2014	Start of Construction
Q3 2013	Commercial Operation Date (COD)
Q3 2034	Repowering/Decommissioning

Turbine Specifications

Make and Model	Siemens SWT 3.0-113
Maximum rated output	2.5 MW
Tower height and blade length	99.5 m and 56.5 m
Rotor diameter	113 m
Blade sweep area	10,000 m²
Range of rotational speeds	6.0 - 15.5 rpm
Maximum sound power level	102.5 dBA
Maximum number of turbines	10

Appendix D9

Public Open House (April 2013)
Frequently Asked Questions

Gunn's Hill Wind Farm

Frequently Asked Questions

The following has been prepared in response to common questions/concerns raised by stakeholders for Wind Projects in Ontario.

Contents

Project Overall 2
Noise 3
Health and Safety 4
Property Values 4
Traffic and Impacts to Roads 5
Heritage Resources 5
Archaeological Assessment 5
Construction 6
Operations 6
Will there be vibrations from the turbines during operations? 6
Complaint Response Protocol 7
Decommissioning 7
Natural Environment 7
Water 8
Aviation Safety, NAV Canada and Transport Canada 9
General Turbine Specifications 10
Emergency Response 10
Land Owner Lease Agreements 10
Community Benefits 11
Miscellaneous 11

Project Overall

Who is the developer of the proposed project?
Prowind Inc. (Prowind) is a Canadian wind energy developer based in Hamilton, Ontario. It is a wholly owned subsidiary of Prowind GmbH, based in Osnabrück, Germany. Prowind's mandate is to create small-scale, renewable, zero-emission power generation. Prowind believes in distributed generation that has a minimum impact on the surrounding environment and landscape.

The Applicant for this project is Gunn's Hill Windfarm Inc., a Special Purpose Vehicle (SPV) created to hold assets of the Gunn's Hill Wind Farm.

What is the proposed project?
The Gunn's Hill Wind Farm (The Project) will consist of up to ten (10) turbines from the Siemens SWT 3.0-113 family. The turbines will have a maximum nameplate rating of 2.5 MW each and the project will have a maximum total installed nameplate capacity of 25 MW. Prowind is proposing to develop, construct, and operate the Project in response to the Government of Ontario's initiative to promote the development of renewable electricity in the province. The Project was awarded a Feed-In-Tariff (FIT) contract with the Ontario Power Authority (OPA) on July 5, 2011.

Where is the project being proposed?
The project is proposed on privately owned, agricultural land as well as municipal right-of-ways (electrical distribution lines only) in the Township of Norwich and the City of Woodstock in Oxford County, Ontario. The Project Area (excluding the overhead cable) is bounded by Firehall Road to the north, Oxford Road 14 to the east, Gunn's Hill Road to the south and Oxford Road 59 to the west. The Project Area is approximately 455 ha. The Project Location (including turbine foundations, roads, cables, and temporary construction areas) is approximately 18 ha in area.

The location of the Project was defined early in the planning process for the proposed wind energy facility, based on the availability of wind resources, approximate area required for the proposed project, and availability of existing infrastructure for connection to the electrical grid.

Approximately 4 km of buried cables (27.6 kV) will run within road easements along a portion of Firehall Road and a portion of Middletown Line. Additionally, approximately 6 km of overhead line (27.6 kV) will run along a short section of Firehall Rd and along Highway 59, Pattullo Ave, Athlone Ave, Juliana Dr, Cedar Creek Golf Club, Parkinson Ave, and South St to the Woodstock Transformer Station (TS).

What are the basic project components?
The Project will consist of up to ten (10) turbines from the Siemens SWT 3.0-113 family. The turbines will have a maximum nameplate rating of 2.5 MW each and the project will have a maximum total installed nameplate capacity of 25 MW. Other basic components include step-up transformers located adjacent to the base of each turbine (step up voltage from approximately 0.69 kV to 27.6 kV), a 27.6 kV underground collector system, fibre optic data lines, a non-Transformer substation, operation and maintenance building and/or storage shed (if required), and turbine access roads.
Temporary components during construction include laydown areas at the turbine locations, crane pads, temporary parking, concrete wash ponds and construction trailers.

The 27.6 kV underground collector lines will transport the electricity generated from each turbine to the substation located along Firehall Road, just east of buried cable to turbine 1. As this is a distribution connected project, a 27.6 kV feeder line will be required to connect into the local distribution system. The overhead lines will be owned and maintained by the proponent and installed on rented space on poles owned by Hydro One and Woodstock Hydro

Will the project require a new high-voltage power line?
No, this project will connect directly into the Woodstock TS which takes input at 27.6 kV. No new high voltage power lines are required. Some new overhead distribution lines will be required.

What are the proposed timelines for the Project?
The table below provides an overview of the projected dates associated with the Project.

Milestone	Approximate Date
Public Meeting #1	February 8, 2010 – Township of Norwich October 10, 2012 – City of Woodstock
Draft REA Reports to Public	February 2013
Public Meeting #2	April 2013
REA submission to MOE	May 2013
Start of Construction	Q1 2014
Commercial Operation (COD)	Q3, 2014
Repowering/Decommissioning	Q3, 2034

Who do we contact for more information? / Where can I access more information?
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Noise

The Project will be sited to comply with the requirements of O. Reg. 359/09. A Noise Assessment has been conducted by Zephyr North in compliance with the Ontario Ministry of Environment requirements published in the "Noise Guidelines for Wind Farms (October 2008)" and the requirements of the REA regulation O. Reg. 359/09. The Noise Assessment was used for siting the wind turbine generators. The final Noise Assessment Report, and will be reviewed by noise specialists at the MOE as part of the REA application review process. It has been made available for public review for a minimum of 60 days prior to the final open house for the Project.

Do all wind projects require a noise assessment report to be conducted?
The Provincial regulations stipulate that wind projects having a sound power level >102 dBA must have a setback >550m (distance relative to number of turbines being proposed), however, if a developer undertakes a noise study (acoustical assessment) following the MOE's guideline entitled "Noise Guidelines for Wind farms" (referenced above) and the study results comply with the MOE guidelines then the setback distances can be reduced to 550m.

What noise monitoring occurs during operations?
An acoustic audit may be conducted after a 3-month operation period if needed, according to MOE regulations and procedures. If sound levels are found to be above the performance limit, the wind turbine operation is modified to reduce sound emissions, mainly by, for example reducing rotational speed or interruption of operation.

The name and model of sound monitoring equipment used would be based on MOE procedures for acoustic audits of wind farms, including minimum requirements for the instrumentation and methodology. Typically, a sound level meter with octave band capabilities is used for time periods of no less than 48 hours.

Health and Safety

Will there be health impacts as a result of the turbines being located near existing residences?
Overall, health and medical agencies agree that when sited properly, wind turbines are not causally related to adverse effects (example reference documents include: Chatham-Kent Public Health Unit 2008, Australian Government, National Health and Medical Research Council 2010, Australian Government 2011, Massachusetts Department of Environmental Protection and Massachusetts Department of Public Health 2012). Some projects have also been challenged on health issues at Environmental Review Tribunal Hearings. To date, none of these challenges have been successful.

Will there be impacts from shadow flicker on nearby residents?
By following the setback distances required under O. Reg. 359/09 it is anticipated that shadow flicker impacts will be mitigated during operations of the Project.

Will there be impacts from stray voltage during operations of the Project?
Stray voltage is an extraneous voltage that is related to the transmission of electricity, not the production of electricity. Stray voltage appears on grounded surfaces in buildings, barns and other structures. Stray voltage is a direct result of poor grounding practices, improper or inadequate wiring or the breakdown of insulation in old wires or electrical loads. Information about stray voltage can be found here: http://www.hydroone.com/MyBusiness/MyFarm/Pages/StrayVoltage.aspx. The Project's electrical collection system would avoid these causes of stray voltage by incorporating all new construction in accordance with standard utility practice and meeting the required stringent design and inspection requirements of the Electrical Safety Authority.

Property Values

There is no evidence to suggest property values are negatively impacted as a result of proximity to wind farms. The Municipal Property Assessment Commission (MPAC) has studied this issue and has found no negative impact on property values. In a recent Assessment Review Board hearing in

Ontario focused on wind turbines and property values, MPAC argued that there was no evidence to show that construction and operation of wind turbines had reduced the current value of the landowner's property.

As well, a comprehensive analysis by the US Department of Energy's Lawrence Berkeley National Laboratory found that proximity to wind energy facilities does not have a pervasive or widespread adverse effect on the value of nearby homes. Researchers examined 7,500 single-family property sales between 1996 and 2007, covering a time span from before the wind farms were announced to well after construction and operation.

Traffic and Impacts to Roads

What is the transportation route the project will use? Who will pay for road repairs/upgrades?
Discussions will take place with county and township staff related to the development of a Traffic Management Plan to address aspects such as the identification of the transportation route(s), road upgrades/repairs, and traffic planning issues.

Any damages/repairs to local roads as a result of Project construction including the transportation of Project components will be the responsibility of Prowind. Prowind will also develop a Traffic Management Plan with the County to specifically address local concerns related to the transport of Project components and impacts to County roads/traffic.

What measures will be used to control traffic and maintain public safety?
A Public Safety Plan would be developed by the Construction Contractor for the protection of public safety during the construction and decommissioning phases, Prowind and/or the Operation and Maintenance Contractor would prepare and implement a Public Safety Plan for operation of the Project. The Public Safety Plan may include site access restrictions. A description of the Public Safety Plan will be considered in the Construction Plan Report and the Design and Operations Report. The reports will form part of the complete REA application package. The effect of constructing and operating the project is anticipated to have a limited, short term effect on traffic. Traffic will be managed through the implementation of a Traffic Management Plan.

Heritage Resources

How will the project avoid damage to the heritage resources?
Specific sections of the O. Reg. 359/09 pertain to Heritage Resources, specifically heritage resources and cultural heritage landscapes. In order to meet the conditions of the regulation, a Heritage Assessment of the location of the Project has been conducted. The project layout has been designed to avoid heritage resources wherever possible.

Archaeological Assessment

The Project is subject to the Environmental Protection Act of Ontario (Act) Part V.0.1 and Ontario Regulation 359/09. Sections s.22 (1), (2), and (3) of Ontario Regulation 359/09, Renewable Energy Approvals (REA) under Part V.0.1 of the Act pertain to Archaeological Resources. The Stage 1 and Stage 2 Archaeological Assessment have been conducted in accordance with these sections of Ontario Regulation 359/09 and the Ministry of Tourism and Culture's 2011 Standards and Guidelines for Consultant Archaeologists.

The Stage 1 Archaeological Assessment entails a desk top assessment of potential archaeological resources that are located within the Project Study Area. The Stage 2 Archaeological Assessment is a pedestrian survey of lands ploughed in the locations where project components are proposed to be located (e.g. turbines, access roads etc.). The land is ploughed to Ministry of Tourism and Culture and Sport specifications. The locations of all artifacts are documented and located using GPS coordinates. The Stage 1 and 2 Archaeology Assessment have been directed by a professional archaeologist licensed with the Ministry of Tourism and Culture and who holds a professional archaeologist consulting license. Any artifacts (for example; pottery shards, buttons, plates, etc) removed from the field are catalogued by the archaeologist and stored. The disposition of the artifacts subsequent to their removal from the field is at the discretion of the archaeologist and Ministry of Tourism and Culture and Sport.

Construction

What impacts will there be from Construction of the Project?

Potential effects from construction will be discussed in the Construction Plan Report. The report will form part of the complete REA application package.

Operations

Can the wind turbines withstand extreme weather events?

Project components will be designed to withstand the effects from extreme weather events including high winds. Considering the design features of the turbine which act to reduce or eliminate the potential for damage from extreme events, no adverse net effects from extreme weather events are anticipated during operation of the Project.

Will ice build-up on the wind turbines?

The meteorological conditions that would cause the formation of ice on wind turbine blades in the Project area are continually monitored and are a rare occurrence. Even under those conditions however, ice throw is controlled in modern wind turbines through the use of sophisticated controls that stop the operation of the wind turbine under such conditions or use heaters to prevent ice from building up on turbine blades.

What monitoring activities will take place during operations?

A description of the operations monitoring and contingency planning program has been included in the Design and Operations Report. The monitoring program will be designed to allow Prowind and/or the Operation and Maintenance Contractor to monitor and assess the effectiveness of any proposed management measures/mitigation measures and to verify compliance of the Project with O. Reg. 359/09.

Prowind and/or the Operation and Maintenance Contractor would be the primary organization responsible for the implementation of the operational monitoring and contingency planning measures.

Will there be vibrations from the turbines during operations?

The levels of vibration from wind turbines are so small that only the most sophisticated instrumentation and data processing can reveal their presence, and they are almost impossible to detect. Vibrations at this level and in this frequency range will be available from all kinds of sources

such as traffic and background noise - they are not confined to wind turbines (Renewable UK, 2005).

Complaint Response Protocol

Prowind will continue its pre-construction contact with Project stakeholders during construction and operations as long as this seems an effective two-way channel for communication. Prowind and/or the Construction Contractor and/or the Operations Contractor will develop and implement a Complaint Response Protocol for the construction and operation phase to address any reasonable concern from the public. Any issues brought forward will be assessed and addressed on a case by case basis. All reasonable commercial efforts would be made to take appropriate action as a result of concerns as soon as practicable.

Decommissioning

Who is responsible for decommissioning the project?

At the end of the project's life, Prowind will repower or decommission the project. Prowind is responsible for the decommissioning of the project including the cost of component removal. Prowind has committed to returning the site to a safe and clean condition after decommissioning of the Project in accordance with requirements to be determined prior to decommissioning. A site restoration plan would be developed based on the standards and best practices at the time of decommissioning.

Decommissioning would include the dismantling and removal of facility components, and restoring the land. Components would be recycled or reused wherever possible. A Decommissioning Plan Report is required as part of the Renewable Energy Approval application package.

Natural Environment

How is the natural environment being taken into consideration during the project?

A Natural Heritage Assessment (NHA) has been completed as part of the project. The NHA will determine the significance of the study area for land based birds, raptors and migratory birds including an area of significant wildlife habitat in the form of seasonal concentration areas – stopover habitat for migratory land birds. The potential effects to birds using this habitat and mitigation measures to minimize these effects will be discussed in the NHA. The NHA also assesses terrestrial habitat and plant life and communities.

Prowind will implement mitigation measures presented in the REA Application documents to minimize and/or avoid sensitive plant and animal habitat.

The preliminary layout considered natural heritage features that had been identified through field investigations that had been completed to date. Information collected from the field studies further influenced refinements to this preliminary layout. Potential effects to natural heritage features have been described in the Natural Heritage Assessment Report. The report will form part of the complete REA application package.

How many trees will be cut down for the placement of project components?

Impacts to trees will be minimized to the extent possible during construction of the Project. Avoidance will be the main strategy used to minimize impacts to trees and woodland habitat. As

infrastructure has been located to avoid existing trees, only a small number of trees will be impacted to increase turning radii at project entrances.

How has the presence of species at risk been considered in the development of the preliminary layout?
Surveys to document species at risk and map the habitats that support these species are underway. The Ministry of Natural Resources (MNR) has been engaged regarding the implications to species at risk from the Project. Consultation is ongoing regarding survey results, potential impacts and mitigation measures that will be employed to minimize and avoid potential effects.

The Project has considered species at risk habitat during the siting process. To reduce potential impacts to species at risk turbines and other project components have been sited outside of habitats that support these species, wherever possible.

The MNR will be consulted as to ensure the project is compliant with the Endangered Species Act (ESA). Where required, a permit application under the ESA will be submitted, which will address any habitat loss and/or any risk of fatalities. The permit under the ESA would only be issued if it has been demonstrated that compensation measures have been put in place that will achieve an overall benefit for each species.

How has the risk to migratory birds and bats been considered?
Surveys to assess the species diversity and abundance of migrating birds have been conducted as part of the NHA; specifically, surveys have been conducted for migrating songbirds, waterfowl and raptors. Based on the result of the field surveys, and available background information, the NHA has identified significant habitat for birds and bats in accordance with provincial guidelines. Where significant habitats occurs in proximity to the project, an Environmental Impact Study has been completed to assess potential impacts to birds and bats and to recommend mitigation measures to avoid or reduce such impacts.

A comprehensive Environmental Effect Monitoring Plan (EEMP) will be implemented to measure the impacts of the facility on migratory birds and bats. The EEMP will include an adaptive management program, which will require the implantation of additional mitigation should significant environmental impacts occur.

What is the Project doing to assess impacts to bats during operations?
Bat mortality rates at wind energy facilities are highly variable among regions. Some species of migratory bats are particularly vulnerable, and mortality peaks during the late summer and early fall migration. The MNR, which is the agency responsible for protecting bats, has produced detailed and prescriptive guidelines for post-construction monitoring of bat mortality, and mandatory mitigation requirements for facilities with high bat mortality. A threshold of 10 bats/turbine/year has been established. Post-construction monitoring for bat mortality will occur in accordance with standard protocols established by MNR. Reports will be submitted annually and the results reviewed by MNR. If the mortality at the facility exceeds the threshold, operational mitigation (as detailed in MNR's guidance document) including turbine shut down at specific times of the year would be required for the duration of the project.

Water

What potential effect will the project have on ground water and/or water wells?

There should be no impact (on drinking water / to groundwater) as a result of the project. Before excavation commences, a geotechnical study is completed at all potential sites for ground water depth as well as to determine necessary parameters required for foundation design. For stability reasons, turbine foundations cannot be built in areas where the ground water is too close to the surface. If water is encountered at any time, good construction practices will be used such as minimizing the length of time that the excavation is open and monitoring seepage during excavation. Should pumping be required to dewater excavated areas, water will be directed to the closest drain or spread across the construction area and appropriate energy dissipation techniques will be used to reduce the potential for erosion and sourcing. It is unlikely that quantities withdrawn will exceed the threshold for the MOE's requirement for a Temporary Permit to Take Water (i.e. >50,000 L per day) let alone negatively affect off-site groundwater quality, quantity, or movement. Concrete used during the building process becomes inert once it is cured and should cause no damage to the water table and no blasting is anticipated during construction.

Aviation Safety, NAV Canada and Transport Canada

Will the project be required to provide information on the NAV Canada and Transport Canada?

Transport Canada has provided recommendations as to lighting requirements for the turbine towers and Prowind will examine all options in order to satisfy Transport Canada while minimizing impact at ground level. NAV Canada has indicated that there is no objection to the project as proposed and Prowind will examine all options in order to satisfy NAV Canada.

What are the turbine setbacks to private airstrips?

Orientation relative to airfield runways are often more important that setback distances. Prowind has consulted with the Curries Aerodrome Owner, Transport Canada, Nav Canada, and an Experienced Aviation Consultant on minimizing impacts to the private airfield. The turbines have been positioned to respect the approach surfaces that would be protected if the airfield was in fact certified with NAV Canada, even though the airfield is not certified.

General Turbine Specifications

Operating Data	Specification
General	
Manufacturer	Siemens
Model	SWT 3.0 113
Name plate capacity (MW)	2.5 MW
Cut-in wind speed (m/s)	3-5 m/s (10.8 – 18 km/hr)
Cut-out speed (m/s)	25 m/s (90 km/hr)
Frequency (Hz)	50 or 60 Hz
Sound power (dBA)	102.5 dBA
Tonal audibility	<2dB
Rotor	
Blade length (m)	56.5 m
Rotor diameter (m)	113 m
Rotor swept area (m^2)	10,000 m^2
Rotational speed (rpm)	6.0 – 15.5 rpm
Tower	
Hub height (m)	99.5 m
Maximum total turbine height (m)	156 m

Emergency Response

During pre-construction and pre-operational mobilization Prowind, the Construction Contractor and/or the Operation and Maintenance Contractor would finalize an Emergency Response Plan for the construction and operational activities in collaboration with the County and Township's Emergency Services Department. The detailed Emergency Response Plans may include protecting the public from equipment and construction areas by posting warning signs, use of personal protective equipment, accident reporting, equipment operation, and confined space entry. Discussions with local emergency services personnel will take place prior to construction and operations to address concerns of local emergency services personnel. If required, Prowind would participate in a training session for these workers. The development of and proper execution of the Emergency Response Plans would help ensure public safety is maintained throughout the operation of the facility.

Land Owner Lease Agreements

Prowind does not publicly release details of contracts. A copy of the landowner lease agreement will not be made publicly available. There is no gag order in place within the landowner lease agreement.

Community Benefits

The Project will bring benefits to the local community including:

- $25,000 annual community development fund
- Potential employment opportunities for local residents (during preconstruction, construction and operations).
    - To the extent possible, local hiring would be maximized during the construction and operation period providing work for existing qualified tradespersons and labourers. Trades that could be provided to qualified local personnel may include pipefitters, electricians, ironworkers, millwrights and carpenters.
- Financial Benefits from turbine blade manufacturing in Tillsonburg
- Financial benefits in the form of new additional tax revenue to the municipality and revenue from the use of municipal road allowances
- Supplemental income for participating landowners
- Improvement to some local roadways. (see details in section titled "Traffic and Impacts to Roads")

Will our electricity costs go up/down?

Prowind submitted an application to the Ontario Power Authority to supply renewable energy to the Province under the Feed-in-Tariff (FIT) program. This provincial initiative is not prescriptive for distributing power to municipalities.

The power that will be generated by the project is sold to the Ontario Power Authority. Prowind has no pricing influence in the Province of Ontario.

Miscellaneous

Why do we need wind energy – don't we already have too much power?

Ontario currently has a small surplus of electricity due to falling demand from a restructuring of our economy and conservation efforts. However, this surplus in only temporary. All of our coal plants are currently being phase out and, as soon as 2015, all of our nuclear plants will need refurbishing. Removing these energy supplies from our grid will require new power sources to be in place.

Canada needs a variety of reliable, clean and safe sources of new energy to meet it future electricity demands and greenhouse gas emission commitments. Wind energy is part of a balanced energy mix.

Is wind energy efficient?

Yes. A modern wind turbine produces electricity 70-85% of the time, but it generates different outputs dependent on the wind speed. Over the course of a year, it will generate about 35% of the theoretical maximum output.

Is wind energy more expensive than other forms of power?

A 2011 Pembina Institute study, Behind the Switch: Pricing Ontario's Electricity Options, found that cancelling the Green Energy Act would result in a slightly slower increase in electricity prices – about the price of a coffee and doughnut per month for the typical household. But in the long term, it found that the investments we're making in renewables are far more likely to lead to cost savings because the price of more traditional energy sources is expected to increase.

Electricity prices are poised to increase across Canada as a result of necessary investment in new electricity generation and infrastructure – the Conference Board of Canada predicts that $347 billion in investment is required between now and 2030. All new generation is more expensive than existing generation and wind energy is extremely cost competitive. This is even more apparent when all costs are considered when choosing an energy source – including impacts on the air we breathe, the water we drink, and cost over-runs that are often passed on to ratepayers.

Will the project interfere with TV and/or internet signals?

It has been our experience that wireless internet services will not be affected by wind turbine operation. We will review potential incidents of telecommunication (including internet) interference and/or electrical related concerns on a case by case basis. Prowind will undertake a telecommunications impact assessment to determine the effect if any wind turbines will have on local telecommunications assets. The criteria for this assessment have been developed through consultation of the wind development industry and the Radio Advisory Board of Canada. In the unlikely event that signal disruption is experienced, mitigation measures are available to alleviate the impact. This may include replacing the receiving antenna with one that has a better discrimination to the unwanted signals, relocating either the transmitter or receiver, or switching to an alternate means of receiving the information (satellite or other means).

Is the project economically viable?

Prowind received a contract from the Ontario Power Authority to supply renewable energy to the Province under the Feed-in-Tariff (FIT) program. The power purchase rate that the program provides is for 13.5 cents/kWh. Prowind believes the economics of the Project make it viable.

Compatibility of Wind Turbines and Land Use

The amount of land area that a wind turbine occupies (turbine pad with access road) is small compared to the overall acreage that a participating landowner has optioned to lease for a project. The landowner can still use the remaining property for farming or other purposes. The placement of wind turbines adjacent to non-participating property does not prohibit the use (building of homes, barns or other structures) of the land. The only consideration that the adjacent landowner must be aware of is that if the turbine locations have been crystallized (finalized by the developer) and a neighbouring property owner (participating or non-participating) decides to build a home closer than 550 m from the turbine location then the developer does not have to consider this structure as a noise receptor in the project noise modeling assessment (as per the Ministry of Environment regulations).

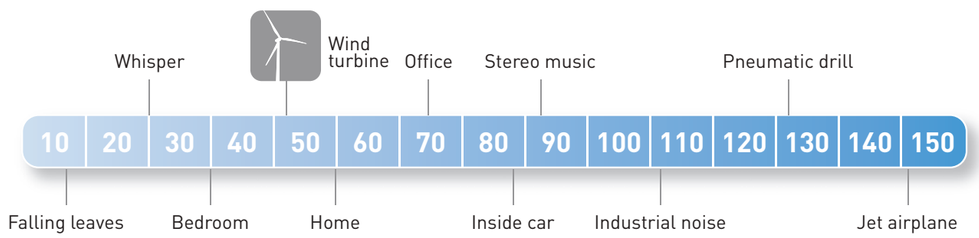
Appendix D10

Project Newsletter

Wind Facts

Sound from wind turbines

Today's wind turbines are quiet enough to hold a conversation at the base. The sound level of a modern wind turbine is comparable to the ambient sound level within most homes. Developers must adhere to strict guidelines for turbine locations when designing wind farms based on the modeled sound level at nearby homes; sound must not exceed 40 decibels (dBA) at neighbouring residences. This regulation is in place to ensure the sound from wind turbines has as little impact on residential households as possible.



Data courtesy of the American Wind Energy Association

Communities

We are proud to be a part of the communities of Oxford Centre and Curries, Norwich Township and Oxford County.

We believe in open communication

If you have any questions or comments about the Gunn's Hill Wind Farm, please contact:

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Visit www.prowind.ca for information on the Gunn's Hill Wind Farm or other Prowind projects.

Prowind CANADA

Prowind CANADA

October 2011

Community Update

Gunn's Hill Wind Farm

We have been working in your community for the past three years to develop the Gunn's Hill Wind Farm. Once constructed, the 25 megawatt (MW) facility will produce renewable electricity equivalent to what is used by approximately 6,250 homes per year.

About Us

We develop and operate power plants driven by renewable sources. Headquartered at our new office in Hamilton, Ontario, we have over 10 years of experience. Wind energy is our focus. We plan to develop and operate wind farms across Canada.

Our unique relationship with farming communities and land owners is what drives our success. Prowind's founder, Johannes Busmann, owns a family dairy farm and has a wind turbine next to his barn. His enthusiasm for renewable energy and his knowledge of the farming community are the foundation for our community approach to building wind farms. Everyone benefits from our wind projects. We believe that together, wind farms and agriculture make a great partnership.

Economics of Wind Energy

The Gunn's Hill Wind Farm will create 2 – 3 permanent skilled jobs and up to 200 jobs during planning, development and construction. These represent jobs that will be locally sourced where possible. Municipal taxes paid by the wind farm will provide many benefits to the community, with annual taxes estimated at $57,000. In addition, Prowind has pledged a $25,000/year community development fund to be administered by a local committee. Members of the community are encouraged to join the committee to help decide on the allocation of funds. This will begin upon commissioning of the wind farm.

Farmland in Ontario is seeing an increase in value. According to a recent RE/MAX Market Trends Report – Farm Edition, the majority of Ontario's agricultural regions have enjoyed a significant increase in prices for farmland over 2010 prices. One reason cited is the supplementary income to farmland owners recieve from wind energy. A turbine placed on farmland can potentially net the average farmer a considerable amount of income above and beyond typical crop value, increasing property value of the farm. Please visit the RE/MAX website at the following address to see a copy of the full report - www.remaxoa.com/MediaNewsroom/Lists/PressReleases/Attachments/68/REMAX_Farm_2011_RPT.pdf.

Project Timeline

Fall/Winter 2011	Finalize field work for REA permit
Spring 2012	Post research results for public review and comment
Summer 2012	Host final open house
Summer 2012	Submit final REA to Ministry of Environment
Winter 2012/2013	Secure REA and Building Permits
Spring 2013	Begin construction
Summer 2013	Install turbines
Fall 2013	Commission wind farm

Gunn's Hill Wind Farm Development Update

Power Contract

Gunn's Hill Wind Farm was awarded a Feed-in-Tariff (FIT) contract in July 2011. The project will be required to meet or exceed a 50% Ontario content target. This ensures that at least 50% of project costs will be reinvested in the Ontario economy.

Environmental Assessment

Since receiving the FIT contract, we have continued to work on the necessary field surveys and studies for the completion of the Renewable Energy Approval (REA) permit. We have been conducting environmental, archaeological, cultural and other studies to assess the potential impact of the project on the area. Once complete, we will post the results of our research for community review. We will host an open house to answer your questions about the project and address your comments. The REA application will be submitted to the Ministry of Environment following completion of these activities. The approximate timeline for this process is outlined on the next page.

Wind Measurement

We spent close to three years measuring the wind speeds at the project site with a 60 m meteorological (MET) tower. The wind measurement campaign is complete and results of the wind assessment will help to quantify the energy potential of the wind farm for final layout and design.

Turbine Specifications

Gunn's Hill Wind Farm will incorporate use of 10 GE 2.5 XL turbines. This turbine model features newly designed blades that increase energy production and reduce sound emission.

The table below presents the dimensions of this equipment.

Make and model	GE 2.5 XL
Maximum rated output	2.5 MW per turbine
Tower and blade height	150 m
Rotor diameter	103 m
Blade sweep area	8,332 m²
Range of rotational speeds	5 - 14 RPM
Approximate foundation diameter	Up to 22 m, depending on soil conditions
Maximum quantity	10