OSTRANDER POINT WIND ENERGY PARK

Second Public Open House Questionnaire Themes

The comments and information below are a summary of Gilead Power's responses to the new questions and comments posed by stakeholders in relation to the Ostrander Point Wind Energy Park (Project).

- ***Details of Lease Agreement with the Ministry of Natural Resources***

Provided the Ministry of Natural Resources (MNR) approves the Plan of Development, Gilead will be granted a "Commercial Wind Energy Lease". This lease grants land from the Crown issued under the Great Seal of Ontario that conveys a leasehold interest in public land for the purpose of construction, maintaining and operating a wind park. The term of the lease will generally be for 25 years with one extension for a further term of 15 years. There are two options for the lease; wind turbines can either be surveyed individually, or the entire wind park may be surveyed as one site. The first lease is granted for individual turbines and the land between the turbines is considered non-exclusive thereby permitting traditional public use. The other lease option will be granted to include all individual turbine locations and associated area within the park. It should also be noted that a separate Land Use Permit is issued for access roads, utility corridors and any other infrastructure required outside the leased area.

Gilead continues to work with the MNR to determine which lease option is the most appropriate for the Ostrander Point Crown Land Block. Details of the lease agreement will be identified in the Environmental Review Report (ERR). Regardless of the lease option agreed upon, Gilead will not fence the perimeter of site, thus allowing traditional public use activities to continue.

In the unlikely event that Gilead is no longer capable of operating the wind park, the responsibility would not fall to the province. In this unlikely event, Gilead would option the Project to another operator. If for some reason the Project can't be sold, it would be decommissioned.

- ***Gilead Power***

Gilead Power Corporation is a privately-owned Canadian corporation based in Peterborough, Ontario. The company was founded in 2004 with a mission to identify and establish clean, renewable energy sources to augment conventional sources in Ontario and across Canada. Gilead has seven full time employees and approximately ninety private investors. Gilead is well financed through private equity, and has expertise in identifying, assessing and developing potential renewable energy projects.

In addition to completing the environmental assessment for the Ostrander Point Wind Energy Park, Gilead will be applying for all the necessary permits and approvals that are required to facilitate the development of a wind power project. Generally, these requirements include the environmental assessment, engineering design, and interconnection with the provincial electricity grid. The majority of these permits are applied for once the environmental assessment is completed and approved. Gilead is committed to the Ostrander Point Wind Energy Project and looks forward to becoming part of Prince Edward County.

- ***Environmental Noise***

Gilead will be adhering to the most stringent requirements during the operation of the wind plant. As stated in the previous Newsletter, the MOE noise guidelines for wind turbines, to which the Project must adhere, are most stringent for Class 3 Rural areas such as the Project Study Area. The sound level limit at a Point of Reception in Class 3 Areas, under conditions of average wind speeds up to 6 m/s (22 km/h) is 40 dBA between the hours of 7 PM and 7 AM. Background ambient sound levels for Class 3 Areas range from about 33 dBA at wind speeds of 6 m/s up to about 46 dBA at wind speeds of 11 m/s.

A detailed Environmental Noise Impact Assessment (ENIA) will be submitted to the MOE for technical review and approval. Upon approval, a Certificate of Approval will be issued under the *Environmental Protection Act*. The Project will then be required to operate according to the terms and conditions of the Certificate of Approval. Monitoring and reporting of the Project will also be completed as per the terms and conditions of the Certificate of Approval.

- ***Shadow Flicker and Potential Effects on People with Epilepsy***

Photosensitivity affects only a small portion of people with Epilepsy (e.g., 3% to 5% of the 2.7 million epileptics in the U.S) [Giuseppe, 2006]. The Epilepsy Foundation has concluded, by consensus of a group of international experts, that photosensitive individuals should not be exposed to flashes greater than 3 Hz (3 flashes per second), although seizures are most likely to be triggered by flashing lights between 5 Hz and 30 Hz (Fisher et al., 2005; Epilepsy Foundation, 2005). It has been stated by Epilepsy Action, United Kingdom, that flashing around 16 Hz to 25 Hz may be above the sensitivity threshold of those people with photosensitive Epilepsy, although some people may be sensitive to rates as low as 3 Hz (Epilepsy Action, 2005).

The shadow flicker frequency which is proportional to the speed of the rotor will be calculated as part of the shadow flicker assessment and will be provided within the Draft ERR. Typically, the speed of the rotor for the size of turbine proposed for the Project ranges from 6 to 16 revolutions per minute. Taking the three blades into consideration, the estimated frequency of flicker would be about 0.3 to 0.8 Hz (i.e., no more than one cycle per second).

- ***Location of Access Roads and Power Lines***

Siting Project infrastructure is a complex process that involves many factors and variables. Environmental constraints such as the presence of wetlands, watercourses, and woodlots are key factors in siting Project infrastructure. Engineering, safety and operational considerations also affect where access roads and power lines are located. The proposed location of access roads and power lines will be presented in the Draft ERR.

The final routing of the main 44 kV transmission line has not yet been determined. Gilead is currently in discussions with Hydro One regarding potential transmission line routes and the potential to utilize existing transmission lines and/or easements within the area. Efforts will be made to minimize tree or vegetation removal to accommodate the transmission line. In the event that tree or vegetation removal is required for the transmission line, the appropriate mitigation measures will be presented within the Draft ERR.

- ***Stray Voltage***

Some stakeholders expressed a concern for an increase in stray voltage from the Project transmission line. Stray voltage has been reported to occur on farms where it can affect livestock. For example, varying amounts of low-level voltage may exist between the earth and electrically grounded farm equipment. When an animal and/or human touches two pieces of equipment that are at different voltage levels, a small electric current passes through the animal and/or person (stray voltage). Hydro One is attempting to address stray voltage where it is a result of poor or faulty farm wiring, improper grounding of older Hydro One distribution lines (hydro lines connected to a farm/house), and other on and off farm sources.

The proposed 44 kV main transmission line for the Project will be designed, engineered and constructed with the appropriate grounding devices such that stray voltage will not occur.

- ***Property Values***

Based upon the data reviewed to date in other areas with established wind farms (e.g., Canada, USA, Europe, and Australia), no evidence of a material negative effect on property value as a result of the presence of wind farms was documented. Potential effects on property values will also be assessed in the ERR as part of the Socio-Economic Impact Assessment being completed for the Project. The results will be provided within the Draft ERR.

- ***Wildlife – Effects of Turbine Lighting on Migratory Birds***

Night migrating birds can be attracted to bright lights, similar to the behaviour of moths around a porch light. However, the attraction of birds to wind turbines equipped with aviation safety lighting required by Transport Canada is greatly reduced by lighting only a subset of the turbines and using lights which slowly flash on and off as opposed to lights which are continuously on. Gilead will work with Transport Canada to balance aviation safety, effects to avian fauna and effects to nearby residents.

- ***Important Bird Areas (IBAs) Designation***

IBAs are designated by BirdLife International, a non-government organization. BirdLife, originally a European based organization, now works around the world to identify IBAs. In Canada, BirdLife is partnered with Nature Canada and Bird Studies Canada. IBAs are selected for a variety of criteria including areas that support rare species or species with restricted ranges, support concentrations of birds during breeding, wintering or migration, or contain a unique habitat type.

The Canadian Wildlife Service, in their Wind Turbines and Birds guidance document, consider proposed wind farm sites in or adjacent to IBAs to be "High Sensitivity". Such sites require more detailed preconstruction studies to determine potential impacts of the wind farm on birds. However, no provincial or federal policy addresses the placement of wind turbines in IBAs. The pre-construction bird monitoring implemented for the Project has been developed in consultation with the Canadian Wildlife Service/Environment Canada and in consideration of the IBA status of the area.

- ***Migratory Birds Convention Act (MBCA)***

The purpose of the MBCA, a federal Act, is to prohibit the damage or destruction of migratory birds or their nests. The prohibition extends to all circumstances on land and seascape that may cause harm or destruction, even when destruction is unintentional. The inadvertent damage to migratory birds is referred to as incidental takes. Incidental takes would include birds accidentally killed by moving vehicles or colliding into residential windows, communication towers or wind turbines.

Environment Canada recognizes that a small number of incidental takes, although not permitted by the MBCA, do not impact overall bird populations. Therefore, Environment Canada is planning to amend the MBCA, with the objective of long-term conservation and protection of migratory bird populations. The amendment aims to have clear, effective and enforceable regulations that provide practical alternatives. Under the amendment, a wind farm could operate if it is demonstrated that the operation results in a relatively low frequency of incidental takes that would not impact the long-term conservation and protection of bird populations (Environment Canada, 2007).

- ***Lightning Protection – Effects of Lightning Strikes on Turbines***

The turbines and substation will be equipped with lightning protection systems designed to accept the electrical charge and transfer it to the ground. The systems may also be equipped with lightning strike sensors to determine the number of strikes and whether it is necessary to inspect the turbine prior to the turbine being placed back in service.

- ***Maintenance/Decommissioning***

The wind turbines will be operated in a manner consistent with nationally recognized standards for operation of wind turbine facilities in Canada. Gilead will hire specialized technicians to carry out the various operation and maintenance activities associated with the turbines and ancillary facilities.

To extend the life of the Project beyond its design life of 25-30 years, it is possible that it will be repowered. Repowering may involve switching/updating gearboxes and generators with new

equipment, exchanging blades, and upgrading electrical equipment. Although no definitive decommissioning plan has been finalized at this stage in the planning process, it is foreseeable that at the end of the Project's useful life the structures will be dismantled. In general, the physical works involved in dismantling the Project infrastructure follow the procedures and practices required for their construction.

- ***Turbine Icing***

Accumulation of ice on the turbine blades is possible during weather events where the turbines may be subject to coating from freezing rain or interception of low clouds containing super cooled rain. The two hazards associated with ice accumulation on wind turbines include: i) the danger of falling ice that may accumulate on the turbine itself as a result of freeze-thaw of snow and ice; and ii) the shedding of ice from the moving turbine blades.

Unlike telecommunication towers, the wind turbines purchased for this Project will have a solid conical tower. This design reduces the potential for ice build up on the tower itself since there is no lattice or crevices for ice to accumulate. In terms of ice shed, when the rotor becomes unbalanced due to a change in blade weighting (e.g., caused by ice build up), the turbine brake is automatically applied to stop the blades from turning (i.e., it shuts itself off). The blades will not restart their movement until the imbalance is removed (e.g., the majority of ice is removed). This design feature greatly reduces the potential for ice to be shed from the turbines.

- ***Local Purchasing***

Local goods and services will be used during the construction phase of the Project when available in sufficient quantity and at competitive prices. We estimate that approximately 14% or $5.3 million in construction expenditures will accrue to persons and businesses in the local area. The key construction related activities accruing to the local area include:

- Construction of concrete pads for the wind towers.
- Road construction.
- Power pole erection and mechanical installations.
- Electrical installations.
- Site security and fencing during construction.

A number of turbine manufacturers are being considered and a specific turbine type for this Project has not yet been finalized; however, one of the turbines being considered is manufactured by AAER Inc. a North American manufacturer located in Quebec.

- ***Cumulative Effects***

Although not required under the provincial Environmental Assessment Process, cumulative effects will be considered within the Environmental Review Report. Cumulative effects describe the potential effects of the Project in combination with the effects of other certain and reasonably foreseeable activities at a regional level. Other certain and reasonably foreseeable activities will include developments that have issued formal notices (i.e., Notice of Commencement for a wind project) or planning applications in terms of residential developments.

- ***Wind Power as Part of Ontario's Electricity Supply Mix***

In June 2006, the Ministry of Energy directed the Ontario Power Authority to proceed with its recommended 20-year electricity supply mix plan which specifies a movement away from coal in favour of new nuclear power and renewable energy. As part of the plan, the government of Ontario has made a direct commitment to the generation of renewable electricity by establishing wind power as a part of Ontario's overall electricity supply mix. Furthermore, the Provincial Government has set targets that will double energy efficiency through conservation and double the amount of energy from renewables (bringing the total to 15,700 MW) by 2025 (OPA, 2005).

The OPA in conjunction with the Independent Electricity System Operator (IESO) are also responsible for determining the appropriate electricity supply mix so that the Province's electricity

supply is stable and reliable. Part of this mix involves the procurement of electricity from renewable energy programs such as wind power through the Renewable Energy Standard Offer Program and Renewable Energy Supply contracts (I, II and III). The capacity factor of wind projects is also considered in the OPA's planning (OPA, 2007).

- ***Wind Industry in Europe***

As stated by the European Wind Energy Association (2008), wind is one of the most popular forms of electricity generating technologies in the European Union, comprising 40% of new power installations. Spain is leading in the development of new wind power installations with a record of installing 3,522 MW in 2007, the highest amount of wind installation in one year in Europe's history.

In Denmark, between 2001 and 2003, a replacement agreement was implemented to replace smaller turbines with larger turbines that have a greater capacity as well as to optimize turbine siting. A new replacement agreement was also implemented in 2004 and is scheduled to run to 2009. Approximately 20% of electricity consumed in Denmark today is from wind power. The Danish Wind Industry Association is aiming for a target of 35% wind power by 2015 (Danish Wind Industry Association, 2008).

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