



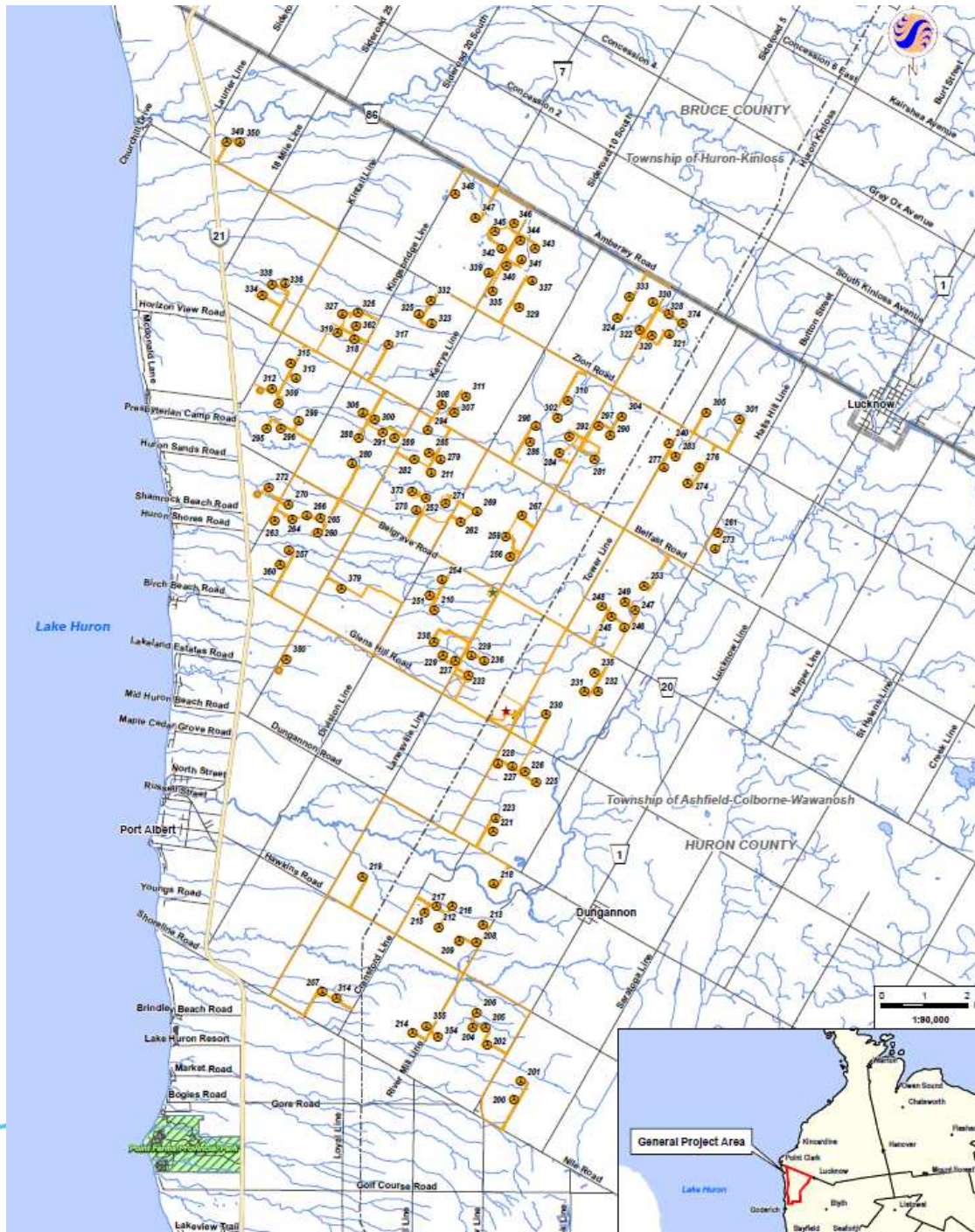
K2 Wind – Community Liaison Committee Meeting #2
Wednesday, May 28, 2014

K2 Wind – Background

- The K2 Wind Power Project is a 270 megawatt (MW) wind project being developed in the Township of Ashfield-Colborne-Wawanosh
- In August 2011, Capital Power, Samsung Renewable Energy and Pattern Energy (the project partners) entered into a limited partnership for the development, construction and operation of the Project.
- The Ontario Power Authority (OPA) signed a Power Purchase Agreement (PPA) for the Project in 2011.
- K2 Wind received its Renewable Energy Approval (REA) from the Ministry of the Environment on July 23, 2013.
- In late 2013, K2 Wind engaged AMEC Black & McDonald as the prime contractor for the Project.
- Commercial operation is anticipated for mid-2015.

K2 Wind - Project Components

- 140 Siemens SWT 2.3 wind turbines located on privately owned leased lands;
- Electrical collection and communications systems including a transmission line, collector lines, data cables, two substations and a Hydro One switching station for connection to the existing 500 kV transmission line;
- An operations and maintenance building;
- Protection and control buildings;
- Meteorological towers;
- Turbine access roads; and
- Temporary construction and laydown areas.



Anticipated Project Timeline

- **Late 2013** – Preliminary civil work
- **Early 2014** - Access roads, turbine excavations
- **Spring 2014** - Turbine foundations poured, electrical system and substations commence
- **July 2014** - Turbines arrive, installation begins
- **Mid-2015** - Project operations to begin

Project Update & Construction Overview



Access Road Construction

- New access roads will be constructed to support construction and transportation vehicles to each turbine site, and for use during operation of the Project.
- Work has commenced on access roads. 80 will be completed for the Project.
- Roads are composed of gravel and are 5 metres wide.
- Some access roads require turnaround areas for delivery trucks. These areas will be restored to pre-existing conditions, as possible, when construction is complete;
- All access roads have been planned in consultation with the landowners.

Access Road Construction



Access Road Construction



Turbine Foundation Construction

- Turbine foundations are made of poured-in-place reinforced concrete.
- The foundations are octagonal in shape with a diameter of approximately 19 metres, and are 3 metres thick.

Foundation construction

- Excavate foundation
- Pour mudmat
- Rebar bottom/anchor cage
- Rebar top/grounding
- Formwork/conduit
- Pour concrete
- Backfill external grounding

Foundation Construction



Foundation Construction



Foundation construction



Foundation construction



Foundation construction



Collector Lines

- 34.5 kV electrical collector lines and fibre optic cables will be installed. The lines will be primarily installed underground.
- The collector lines carry the electricity from the turbines to the Project's substation and transformer station.
- The cables will be installed immediately to one side of the access road and within the municipal road allowance.
- Directional drilling will begin shortly.

Collector Lines



Collector Lines



Substation, transformer station, switchyard

- The substation and switchyard property is located at the northwest corner of the Tower Line and Glens Hill Road.
- The transformer station will be located on the SW corner of Lanesville Line and Belgrave Road and will be contained within 10 acres.
- The transformer station was planned to allow for the collector system to be predominantly buried (as opposed to above ground on wooden poles) as requested by the Township of ACW and local residents.

Substation, transformer station, switchyard

- To allow most of the collector system to be buried, approx half of the collector lines will be routed to the transformer station. Here, the power will be stepped up to 230 kV, prior to being fed to the substation.
- Power is then stepped up to 500 kV prior to being fed to the Hydro One switching station and to the existing 500kV transmission line, which connects to the provincial energy grid.
- The substation houses the switching, control, protection, communication and metering system.
- Hydro One is underway with work on the switching station. Work on the substation will commence in June.

Example of a Switching Station



Turbine Components

- Turbine components are expected to be delivered starting in July.
- 140 Siemens SWT 2.3 wind turbines located on privately owned leased lands;
- Each wind turbine consists of eight key components:
 - concrete tower foundation;
 - four steel tower sections;
 - nacelle (comprised of gearbox, electrical generator, step-up transformer and housing);
 - three rotor blades;
 - hub (the structure to where the blades attach);
 - power convertor;
 - electrical wiring and grounding; and,
 - Lightning protection/fire detection and suppression system, including steel nacelle design to limit fire risk.

Turbine Components



Turbine Components





Turbine Components



Questions?



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