



Intelligent energy for a greener planet

**Grand Bend Wind Limited Partnership  
Grand Bend Wind Farm  
Community Liaison Committee (CLC)**



Intelligent energy for a greener planet

# Grand Bend Wind Farm Community Liaison Committee (CLC) Meeting

December 9, 2015

## Agenda

- Welcome and Introductions
- Community Liaison Committee (CLC) Purpose
- Grand Bend Wind Limited Partnership – Who We Are
- Project Development
- Project Construction
- CLC Member Q&A
- Next Steps

## Committee Purpose

1. To act as a liaison facilitating two way communications between GBWF and the members of the public with respect to issues relating to the construction, installation, use, operation, maintenance and decommissioning or retirement of the Facility;
2. To provide a forum for GBWF to provide regular updates on matters relating to the wind farm, as the project progresses or as issues arise.
3. To encourage input from the public to identify opportunities for improvements or mitigation measures, enabling both parties to work together to resolve or minimize concerns.

# Grand Bend Wind Farm (GBWF)



## Grand Bend Wind Limited Partnership – Who We Are

Grand Bend Wind Limited Partnership (GBWLP) is a 50-50 partnership between Northland Power Inc. (NPI) and Giiwedin Noodin FN Energy Corporation. The Limited Partnership is a single purpose company owning Grand Bend Wind Farm (GBWF)

Giiwedin Noodin FN Energy Corporation was formed by Aamjiwnaang First Nation and Bkejwanong Traditional Territory (Walpole Island FN).

NPI is a Toronto based company and has been developing and operating facilities since 1988. NPI operates natural gas-fired thermal stations in Ontario (5) and Saskatchewan (2); operates 13 ground mount solar farms in Ontario; and operates wind farms in Germany (2), Quebec (2) and Ontario (1). NPI also has two large off-shore wind farms under construction in the North Sea (Holland/Germany)

# Grand Bend Wind Farm (GBWF)

---



## Project Development

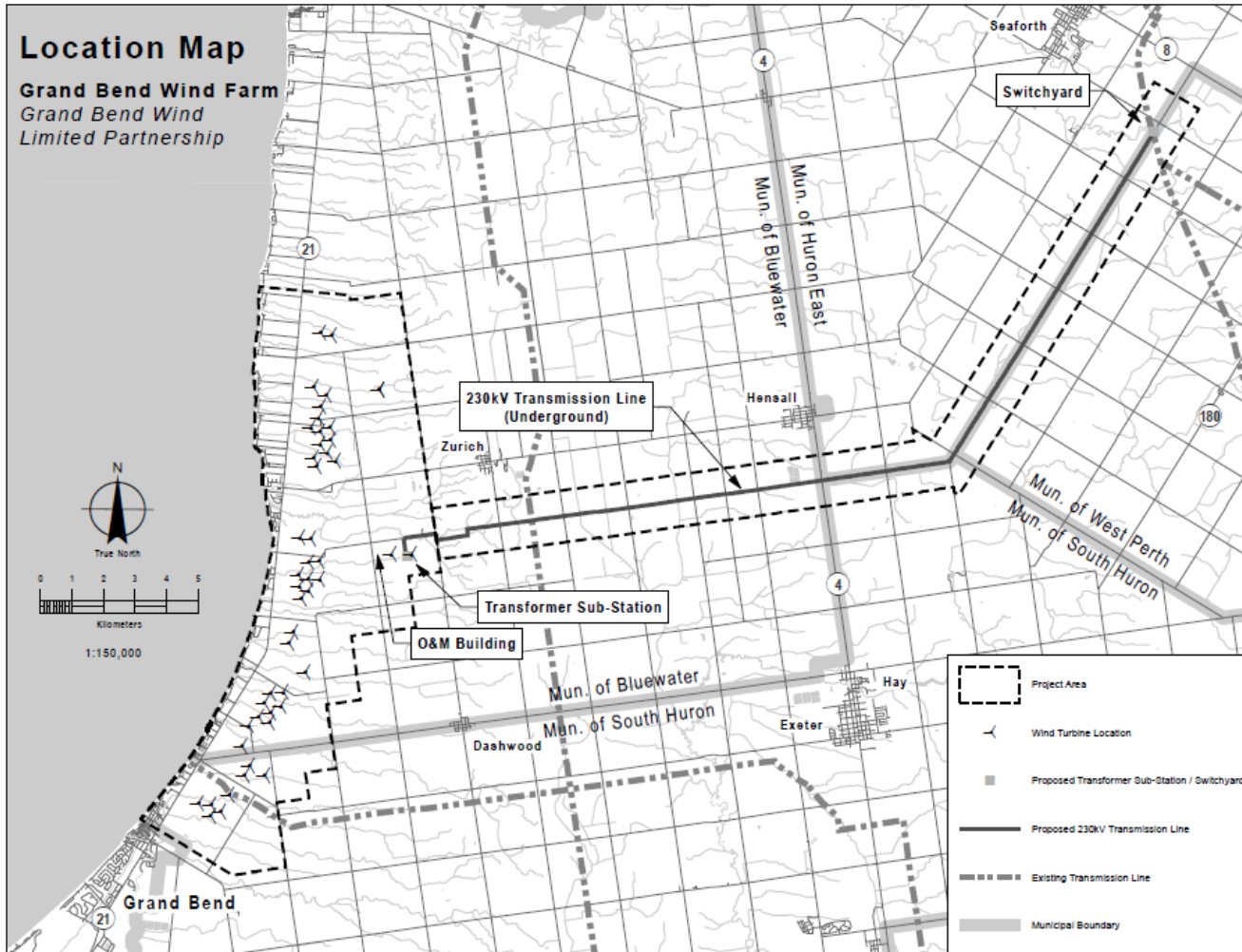
Development on the GBWF started many years ago. Site selection started in 2003 approximately, prior to many of the other wind farm developments in the area.

A successful wind farm project requires good turbine sites with a robust wind regime, a suitable connection point to the transmission grid (Hydro One Networks Inc. – HONI) and a power purchase agreement (PPA) with a “bankable” counter party (Ontario Power Authority – OPA). Obtaining suitable agreements took considerable time.

The logistics of building the wind farm must be considered too, including the many restrictions imposed during the REA permitting process, the routing that the collector lines will take to the transformer station and use of municipal roads and allowances.

# Grand Bend Wind Farm (GBWF)

## Project Development - Site Map



## Project Development cont'd

As Development advanced, a few key changes were made to the project to incorporate suggestions received during our consultation and also take advantage of technology advances:

- 1) The entire length of high voltage transmission line was buried from the transformer station to the connection point switching station
- 2) An application has been made to Transport Canada to allow the navigation lights on the wind turbines to be normally “off” and a radar based aircraft detection system will turn the lights “on” when an aircraft is in the vicinity
- 3) The GBWF originally expected to use 46 - 48 2.20 MW wind turbines, but a switch was made to a newer Siemens turbine, de-rated to 2.50 MW, which allowed the project to reduce the number of wind turbines down to 40



## Project Construction

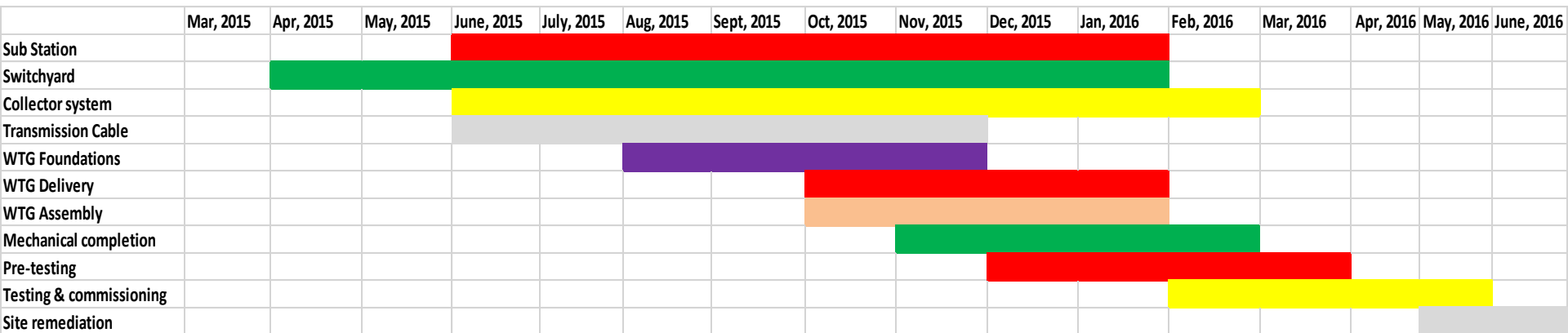
The GBWF's Engineer, Procure and Construct (EPC) contractor is a joint venture between AMEC/Foster Wheeler (design) and Black & McDonald (construct) (ABMD). ABMD have partnered on other wind farm developments, so they are experienced in over-seeing the complex nature of a wind farm's construction, including:

- Construction of the access roads, water crossings and crane pads
- Excavation and forming of the turbine tower foundations
- Erection of the wind turbine tower segments, nacelle and blades
- Installation of the buried collector line circuits and transmission line
- Construction of the main transformer station and remote switching station
- Coordinating the transportation and handling of the large tower pieces
- Connecting all control signals and alarms to the O&M Building in Zurich

# Grand Bend Wind Farm (GBWF)



## Project Construction cont'd

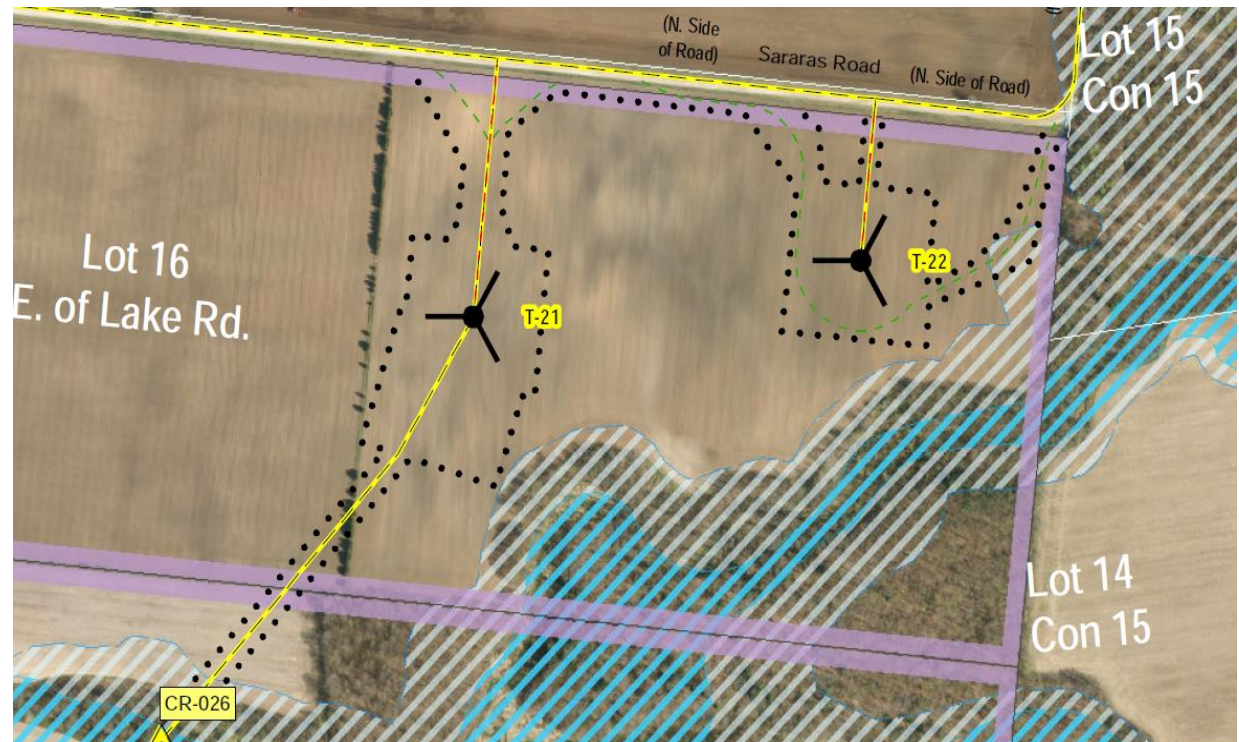


# Grand Bend Wind Farm (GBWF)

## Project Construction cont'd

Numerous constraints exist at each turbine location. Precise steps are being followed to comply with the restrictions.

- Each turbine area is staked to identify work area limits (ABCA, MOE, MNR, Archaeological)
- Erosion and sediment controls are put in place
- Top soil is removed and stored to minimize run-off
- Drainage tiles are being cut and redirected
- Precautions are being taken to prevent the spread of the Soybean cyst nematode
- Environmental Monitors are present witnessing work activities



# Grand Bend Wind Farm (GBWF)

## Project Construction cont'd

Siemens 3.0MW-113m, hub height 99.5m,  
de-rated nameplate capacity 2.483 MW

- Nacelle weight 78 t
- Rotor weight 67 t
- Tower sections 5
- Blade length 55m
- Direct drive (quieter)
- First WTG component delivered Oct 8/15
- T2 erected Nov 24/15
- T1 erected Nov 28/15



# Grand Bend Wind Farm (GBWF)

## Project Construction cont'd



### Wind Turbine Foundations (Qty – 40)

~ 21 m Across flats

~ 3 m Tall

~ 450 cu.m. of concrete

~ 50 m ton rebar

~ 600 cu.m. of backfill

Started Aug 26 – Finished Nov 4



# Grand Bend Wind Farm (GBWF)

## Project Construction cont'd



### Collector System

- ~ 75 km of trenched collector lines
- 4 independent circuits
- 10 wind turbines per circuit
- 34.5 kvolts
- Started July – Finished Nov 2015



# Grand Bend Wind Farm (GBWF)

## Project Construction cont'd



### Transmission Line (underground)

~ 31 km of trenched transmission lines

21 splices

4 splicing crews

230 kvolts

Started June – Finished Nov 2015

# Grand Bend Wind Farm (GBWF)

## Project Construction cont'd

### 230 kv Transformer Sub-station

- Shunt Reactor delivery Sept 28
- MPT delivery Oct 20
- 230KV terminations completed Oct 15
- P&C Bldg delivery Oct 1
- GIS Bldg delivery Sept 10
- SST /grounding transformers delivery expected Dec
- Spill containment for oil filled equipment





# Grand Bend Wind Farm (GBWF)

## Project Construction cont'd

### 230 kv Switch Yard (connection point)

- HONI tie-in July 23/15
- P&C Bldg delivery Aug 11/15
- HONI disconnect switch test Aug 27/15
- Backfeed ready Jan 14/16
- Injection to HONI grid Jan 28/16
- Spill containment for oil filled equipment



## Project Construction cont'd

Projects of this size and nature (spread out wind farm) pose a challenge through the construction stage. Some of the notable challenges include:

### Landowner Concerns

- Tile drain damage and resultant repairs on participating properties
- Some Contractor's subs driving across fields damaging crops
- Some mailboxes damaged from the collector line excavation equipment
- A water supply line was cut to one house during collector line installation
- Concern that some project infrastructure is on private property (when in fact it was within the municipal road allowance which is not clearly delineated)
- Soybean Cyst Nematode concern

## Project Construction cont'd

Projects of this size and nature (spread out wind farm) pose a challenge through the construction stage. Some of the notable challenges include:

### Municipal Concerns

- Road Dust
- Heavy Equipment on roads not approved for use (Heavy Haul Routes)
- Damage to roadways (subject to repair per the road users agreement)
- Occasional missing traffic spotters/control signs
- Buried infrastructure (collector lines/transmission cables) too close to the edge of the current (or future) road edge, while balancing the MOE & ABCA demands

We thank the landowners, public and municipality for their cooperation & patience

## Committee Member Q&A

- In future meetings we will solicit questions in advance, which we can build into the presentation
- We welcome questions from Municipal officials, participating Landowners, members of the public



# Grand Bend Wind Farm

## Next Steps

- Next meeting Spring 2016
- Future Topics to include:
  - Construction / Env
  - Operations / Env
  - Operations / Env / Closure
- Encourage dialogue should you have any questions or concerns – please call us!

