

Wind Energy Centres - Open House

Natural Heritage: Water – Adelaide Project

- Aquatic studies for the Adelaide Wind Energy Centre have been underway since September 2011
- This work requires that aquatic biologists visit watercourses within 120 m (394 feet) of any proposed project infrastructure and conduct investigations to:
 - ✦ Measure stream width and depth
 - ✦ Characterize vegetation cover, substrate composition and water flow patterns
 - ✦ Observe the presence of fish and/or groundwater
- Findings from these studies will be used to determine potential effects on fish, water quality and surface and ground water quantity as a result of the proposed project. These findings are being considered in the wind farm design to minimize impacts as much as possible
- Studies conducted to date suggest that aquatic habitat is not of high quality on this site and no Species of Concern are expected to be impacted by the project.
- GL Garrad Hassan (independent consultant) will submit a Water Assessment and Water Body Report to the Ministry of the Environment that will outline potential effects, proposed mitigation measures, monitoring commitments and determine the significance of residual effects
- NextEra Energy Canada will obtain all applicable permits from the appropriate approval agencies (Ausable-Bayfield Conservation Authority, St. Clair Region Conservation Authority, and the Ministry of Natural Resources)



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Natural Heritage: Water – Bornish Project

- Aquatic studies for the Bornish Wind Energy Centre have been underway since September 2011
- This work requires that aquatic biologists visit watercourses within 120 m (394 feet) of any proposed project infrastructure and conduct investigations to:
 - ✦ Measure stream width and depth
 - ✦ Characterize vegetation cover, substrate composition and water flow patterns
 - ✦ Observe the presence of fish and/or groundwater
- Findings from these studies will be used to determine potential effects on fish, water quality and surface and ground water quantity as a result of the proposed project. These findings are being considered in the wind farm design to minimize impacts as much as possible
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Natural Heritage: Birds – Jericho Project

- NextEra Energy Canada has utilized an avian (bird) monitoring protocol that meets the requirements of MNR's natural heritage assessment guidelines for turbines and birds
- Bird surveys have included Spring Bird Migration Surveys, Breeding Bird Surveys, Fall Bird Surveys and Winter Bird Surveys
- Bird surveys were conducted over all four seasons to profile species and look at the following factors:
 - ✦ Migration Patterns
 - ✦ Breeding Activity
 - ✦ Behaviour Patterns
 - ✦ Significant or Critical Habitats
- The bird surveys were conducted by establishing survey plots, visual and sound observations, and a search of habitat in the study area
- The last of the bird studies was completed in summer 2011 and data from the studies is currently being analyzed and compiled
- The results of these studies will be submitted to the MNR for review and approval as part of the Natural Heritage Assessment Report
- Findings from the natural heritage studies are being considered in the wind farm design to minimize impacts as much as possible



Natural Heritage: Birds – Adelaide Project

- NextEra Energy Canada has utilized an avian (bird) monitoring protocol that meets the requirements of the MNR natural heritage assessment guidelines for turbines and birds
- Bird surveys have included Spring Bird Migration Surveys, Breeding Bird Surveys, Fall Bird Surveys and Winter Bird Surveys, which were completed in 2008 and 2011
- Bird surveys were conducted over all four seasons to profile species and look at the following factors:
 - ✦ Migration Patterns
 - ✦ Breeding Activity
 - ✦ Behaviour Patterns
 - ✦ Significant or Critical Habitats
- The bird surveys were conducted by establishing survey plots, point count locations and conducting habitat searches in the study area, while recording visual and sound observations
- The last of the bird studies was completed in June 2011, data from the studies is currently being analyzed and compiled
- The results of these studies will be submitted to the Ministry of Natural Resources for review and approval as part of the Natural Heritage Assessment Report
- Findings from the natural heritage studies are being considered in the wind farm design to minimize impacts as much as possible



Natural Heritage: Birds – Bornish Project

- NextEra Energy Canada has utilized an avian (bird) monitoring protocol that meets the requirements of the MNR natural heritage assessment guidelines for turbines and birds
- Bird surveys for the Bornish Wind Energy Centre have included Breeding Bird Surveys and Winter Bird Surveys, which were completed in 2007 and 2011
- Bird surveys were conducted over two seasons to profile species and look at the following factors:
 - ✦ Migration Patterns
 - ✦ Breeding Activity
 - ✦ Behaviour Patterns
 - ✦ Significant or Critical Habitats
- The breeding bird surveys were conducted by establishing point count locations and conducting habitat searches in the study area, while recording visual and sound observations
- The last of the bird studies was completed in June 2011 and data from the studies is currently being analyzed and compiled
- The findings of these studies will be submitted to the Ministry of Natural Resources for review and approval in the Natural Heritage Assessment Report
- Findings from the natural heritage studies are being considered in the wind farm design to minimize impact as much as possible



Natural Heritage: Bats – Jericho Project

- Bat studies were completed in mid July 2011
- Properties that contained wooded areas within 120 m (394 feet) of proposed infrastructure were examined by biologists to search for suitable bat habitat
- After examining the habitats, certain properties were chosen for more extensive monitoring which involved installing bat monitoring equipment within (or adjacent to) the wooded habitats for 10 days in June to record the number of bat passes
- These properties also required 10 nights of visual surveys which involved examining woodlands with spotlights and microphones to look for bat activity
- Bat monitoring was completed in accordance with the Ontario Ministry of Natural Resources “Bats and Bat Habitats: Draft Guidelines for Wind Power Projects (March 2010)” and will be reviewed by the Ministry of Natural Resources as part of the REA’s Natural Heritage Assessment requirements
- In July 2011, the Ontario Ministry of Natural Resources issued new guidelines “Bats and Bat Habitats : Guidelines for Wind Power Projects” with more specific criteria to evaluate bat habitat. Re-assessments of all woodlands within 120m of proposed infrastructure will be completed according to the newly updated provincial regulations
- Findings from these studies will be considered in the wind farm design to minimize impacts as much as possible



Natural Heritage: Bats – Adelaide Project

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- Properties that contained wooded areas within 120 m (394 feet) of proposed infrastructure were examined by biologists to search for suitable bat habitat
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- In July 2011, after the completion of the 2011 monitoring program, the Ontario Ministry of Natural Resources has issued new guidelines “Bats and Bat Habitats : Guidelines for Wind Power Projects” with more specific criteria for evaluation bat habitat. Re-assessments of all woodlands within 120m of proposed infrastructure were completed according to the newly updated provincial regulations
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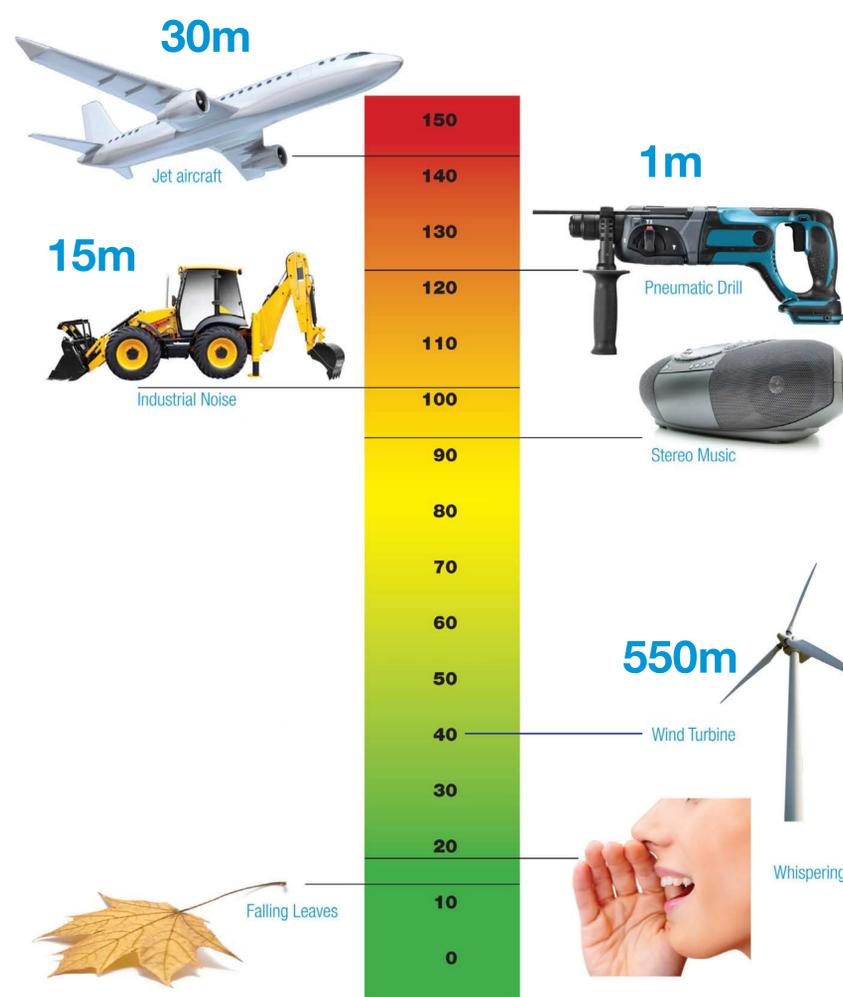
Noise Studies

Noise studies will be conducted to help determine the final turbine layouts. The noise studies comprise the following steps:

- **Step 1:** Identify points of reception – dwellings (typically houses) that are within 2km of the wind turbines
- **Step 2:** Obtain wind turbine specifications and noise emission ratings from the manufacturer
- **Step 3:** Using initial wind turbine layouts, predict the noise levels generated at points of reception using a noise prediction model to ensure allowable limits are not exceeded. The noise model is designed in accordance with standards set by the Ministry of Environment (MOE)
- **Step 4:** Using the noise model results, turbine layouts will be revised as necessary to ensure that the final turbine layouts meet all applicable noise guidelines

Noise requirements under Renewable Energy Approval Regulation (O.Reg. 359/09)

- Wind turbines will be set back from dwelling units that are not part of the project by at least 550m (1804ft) and must be at or below 40dBA.
- Noise from turbines must meet provincial noise limits as outlined in MOE publication 4709e “Noise Guidelines for Wind Farms”



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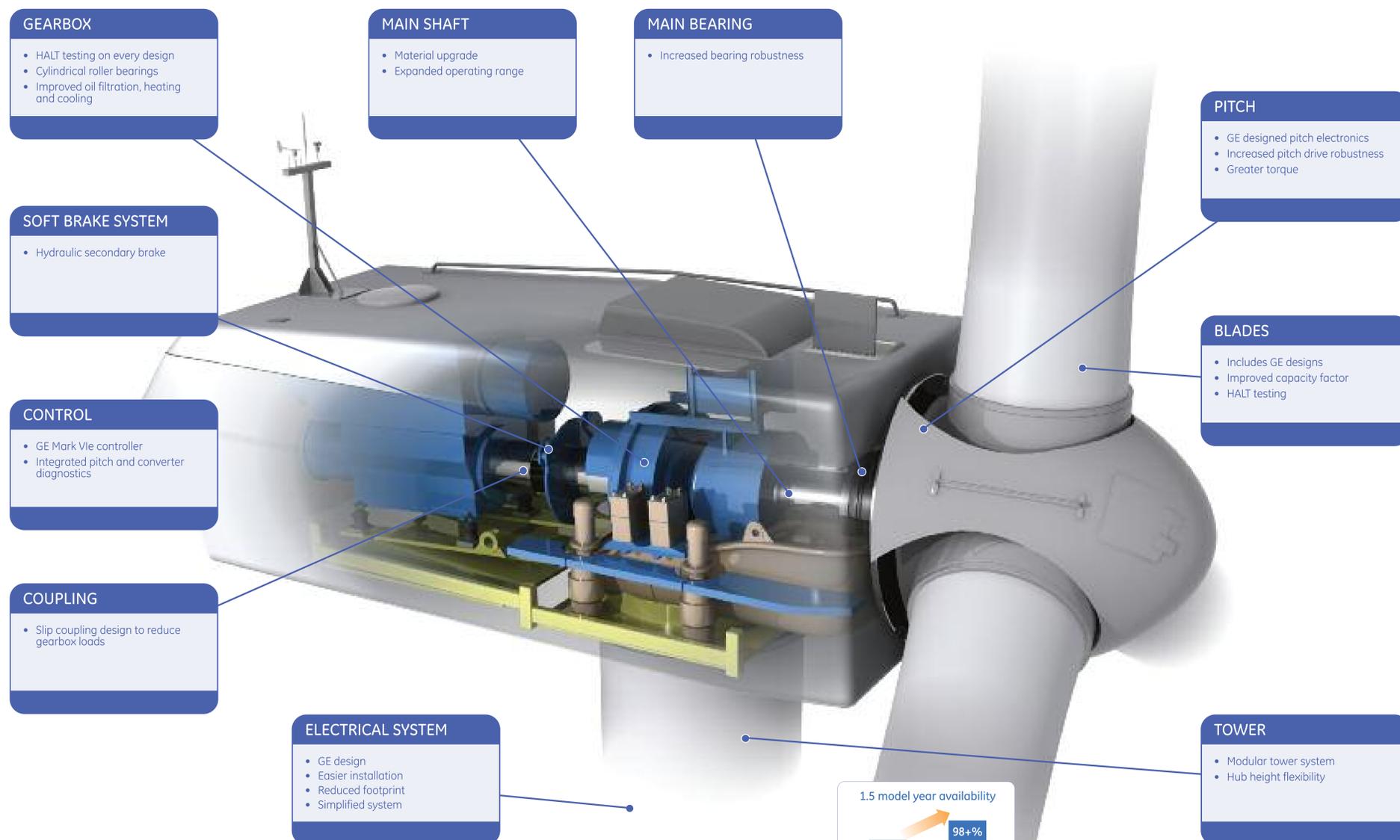
Turbine Specifications

Leading reliability and availability performance

GE's 1.5 MW wind turbine and services are designed to set the industry standard for product reliability and availability performance. GE's continual investments in technology, established infrastructure, research capabilities and globally recognized business processes allow GE to create and deliver customer value by maximizing energy capture and return on investment. This is evident through our model year performance trend where availability performance significantly improves each year.

Delivering reliability through advanced technology

To optimize turbine reliability and availability, GE focuses on reducing the number of downtime faults, and providing faster Return-to-Service (RTS). Our rigorous design and testing process—including specialized 20-year fatigue testing and Highly Accelerated Life Testing (HALT)—reflects our ongoing investment in key turbine components.



Technological expertise

GE Infrastructure

Energy

- Controls, materials, power electronics
- Fulfillment and logistics capability
- Efficient supply chain management

Aviation

Aerodynamic and aero-acoustic modeling expertise

Rail

Gearbox and drive train technologies

GE Global Research

- Energy conversion
- Material sciences
- Smart grids

1.5 MW WIND TURBINE 7

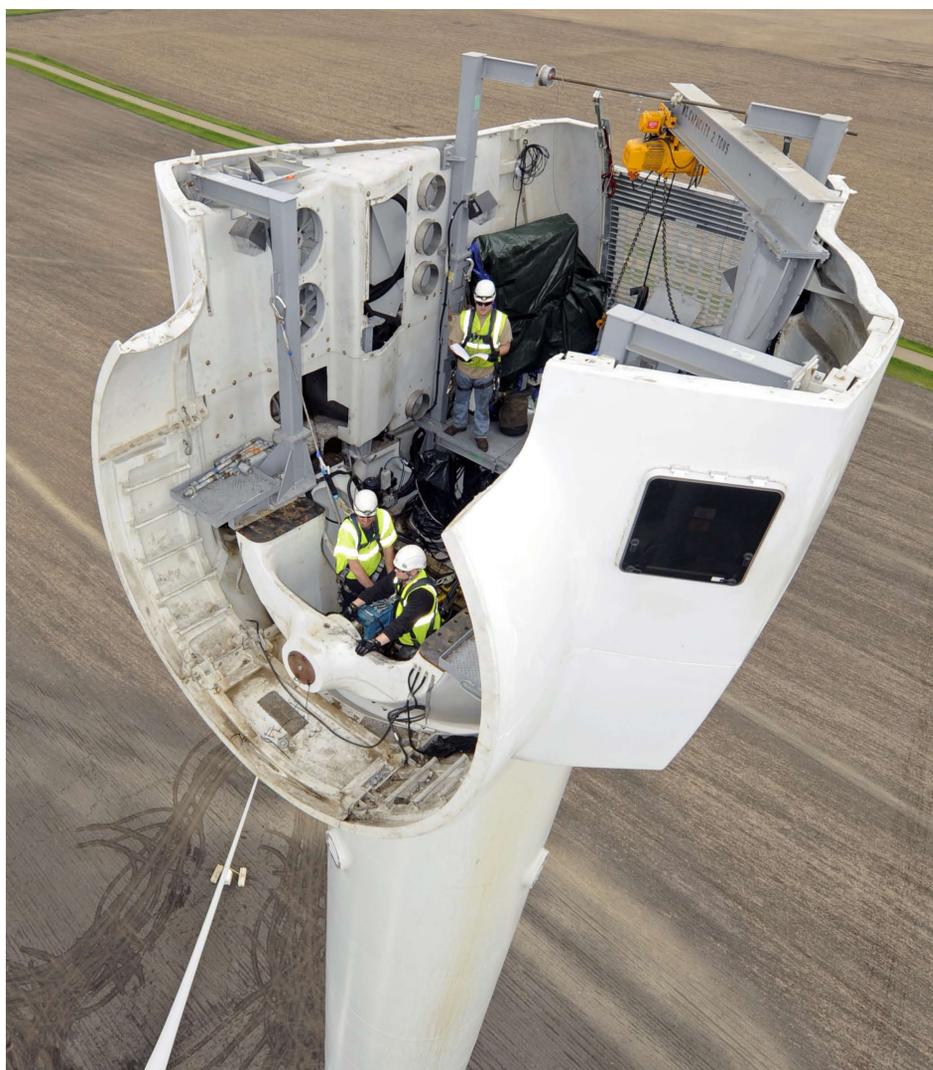
Construction Plan

Turbine siting and surveys

- ✦ Site preparation will include final turbine siting and surveys
- ✦ During these surveys, boundaries of turbine sites will be staked and existing buried infrastructure will be located and marked

Access roads

- ✦ Municipal and Provincial roads will be used to transport equipment to the construction sites
- ✦ Minor modifications may be required to some of the existing roads (e.g. widening the turning radius) to transport equipment
- ✦ New access roads will typically be 10 m (34 feet) wide during the construction phase
- ✦ No permanent paved roads will need to be constructed for the turbines
- ✦ Equipment will be delivered by truck and trailer as needed throughout the construction phase and stored at temporary laydown sites surrounding each turbine



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Construction Plan

Electrical Collector System:

- ✦ This system consists of a mixture of underground cables, overhead lines, pad mounted transformers and a substation
- ✦ Ploughing and trenching will be used to install the underground cables
- ✦ The cabling will be buried at a depth that will not interfere with normal agricultural practices and maps of cable locations will be provided to the landowners

Wind Turbines:

- ✦ Foundations will be made of a poured concrete reinforced with steel rebar to provide strength
- ✦ Each foundation will require an excavation of approximately 3 metres (10 feet) deep, and 20 metres (66 feet) by 20 metres (66 feet)
- ✦ Only the tower base portion of the foundation will be left above ground
- ✦ The turbine will then be anchored to the foundation by large bolts set in concrete
- ✦ Turbine assembly and installation will typically require 4 - 5 days per turbine
- ✦ Following commissioning, the area surrounding the turbine will be returned to its pre-construction state

Operations and Maintenance Building:

- ✦ This building will be constructed on privately held lands, and be used to monitor the day-to-day operations of the wind farm and maintenance efforts
- ✦ Potable water will be supplied by a well or through the municipal water system and if required, a septic bed will be constructed for the disposal of sewage
- ✦ These will be constructed in accordance with applicable municipal and provincial standards

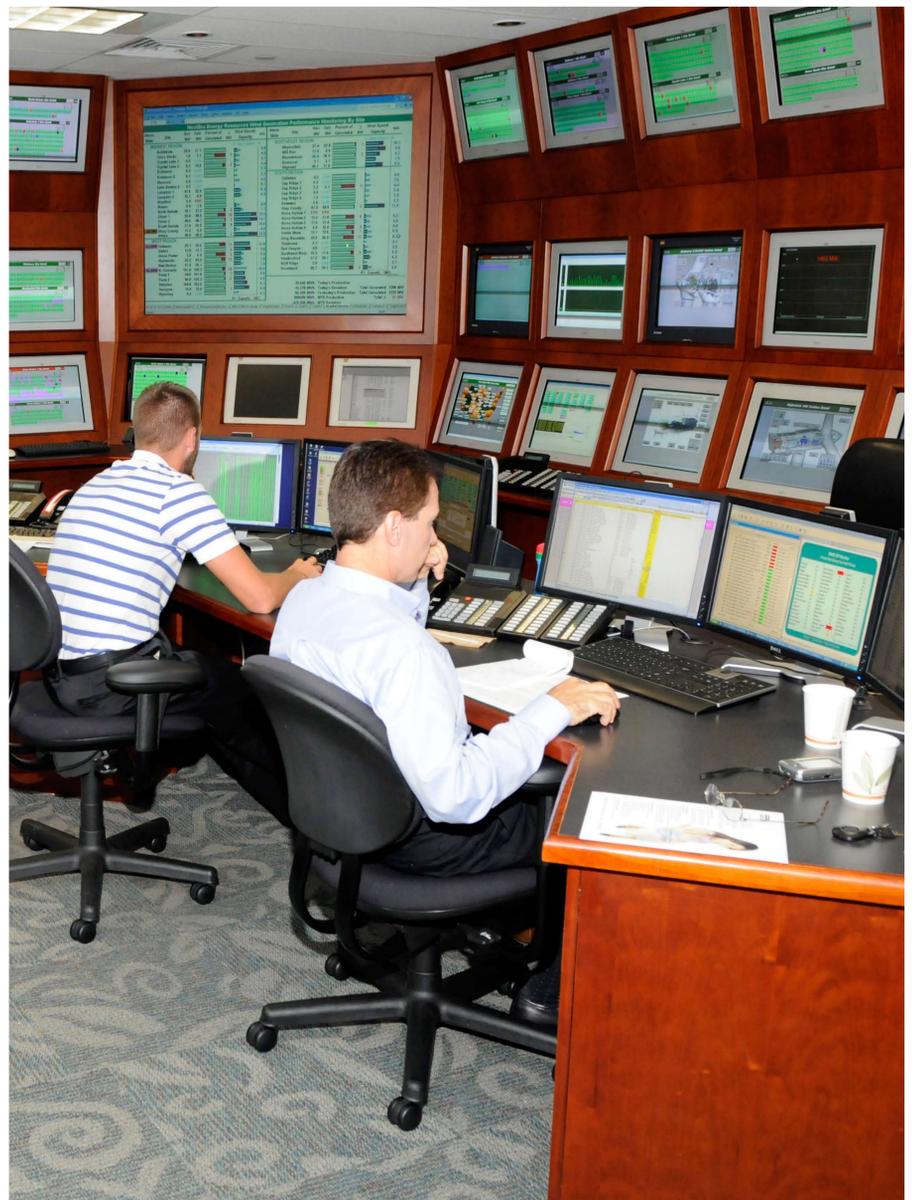


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Operations and Maintenance

NextEra Energy believes in “prevention” versus “event response” through component condition and performance assessment

- ✦ Experienced operations and maintenance managers on site
- ✦ On-going training and mentoring programs to maintain safe and efficient operation
- ✦ Site staff supported by centralized maintenance and environmental staff
- ✦ Supported by 24/7 Fleet Performance and Diagnostic Centre
- ✦ Local operations team available to answer your questions and address concerns



Decommissioning Plan

- Project is expected to be operational for 25+ years
- Plan is in place now to remove all turbines to the top of the foundations after 25 years
- Repair, refurbishment and replacement of turbines is typical of a preventative maintenance program
- Options exist other than decommissioning

Components to be removed:

- ✦ Turbines
 - ✦ Overhead lines and poles
 - ✦ Substations
- The top one metre (3 feet) of turbine foundations will be removed and replaced with clean fill and stockpiled with topsoil
 - Areas will be reseeded where appropriate
 - Access road removal will be dependent on the requirements of the landowner



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Transmission Approvals Process

- Transmission lines (lines with voltages higher than 50kV) that are longer than 2km require a Leave to Construct from the Ontario Energy Board
- This process examines the need for the line and the proposed routing, ensuring that the priorities given to the Ontario Energy Board by the government are met – namely that the project is of benefit to the ratepayer (the public)
- In addition to the Leave to Construct process, the lines will be permitted as part of the Renewable Energy Approval process

