

WIND ENERGY CENTRE - OPEN HOUSE

Construction Plan

Electrical Collector System:

- ✦ This system consists of a mixture of underground cables, 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 landowners

Wind Turbines:

- ✦ Foundations will be made of poured concrete, reinforced with steel rebar to provide strength
- ✦ Each foundation will require an excavation of approximately 3 metres (10 feet) deep, 20 metres (66 feet) wide and 20 metres (66 feet) long
- ✦ The turbine will then be anchored to the foundation by large bolts set in the concrete foundation
- ✦ Only the tower base portion of the foundation will be left above ground
- ✦ 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 Centre:

- ✦ The centre will be located outside the project area and will be used to monitor the day-to-day operations of the wind farm and maintenance efforts
- ✦ For the Conestogo Wind Energy Centre an operations and maintenance centre was constructed that will also be used for this project

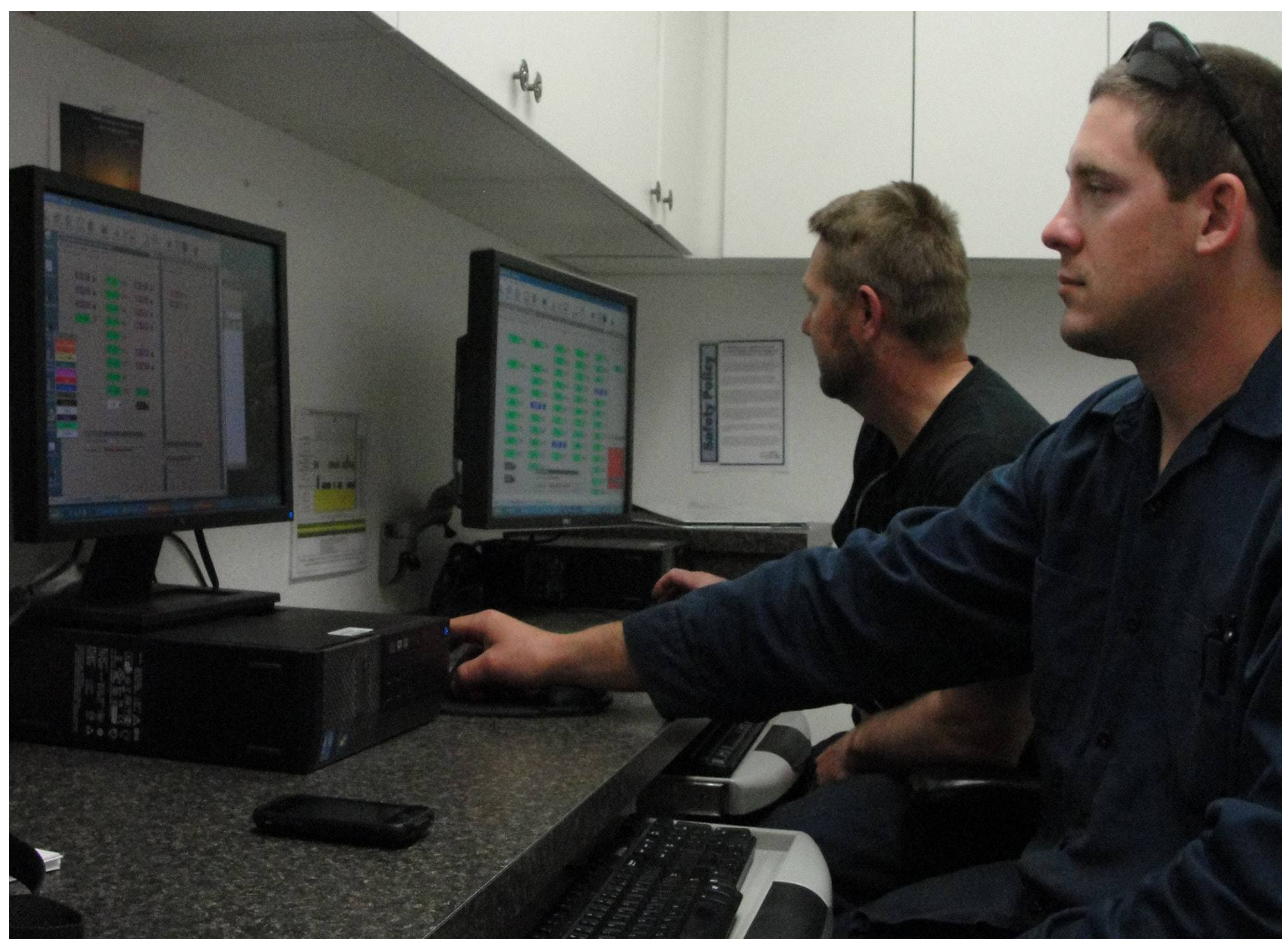


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Operations and Maintenance

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

- ✦ Experienced operations and maintenance managers at the O&M location
- ✦ 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 questions and address concerns



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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 [extremely low frequency]. 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, NextEra Energy 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.

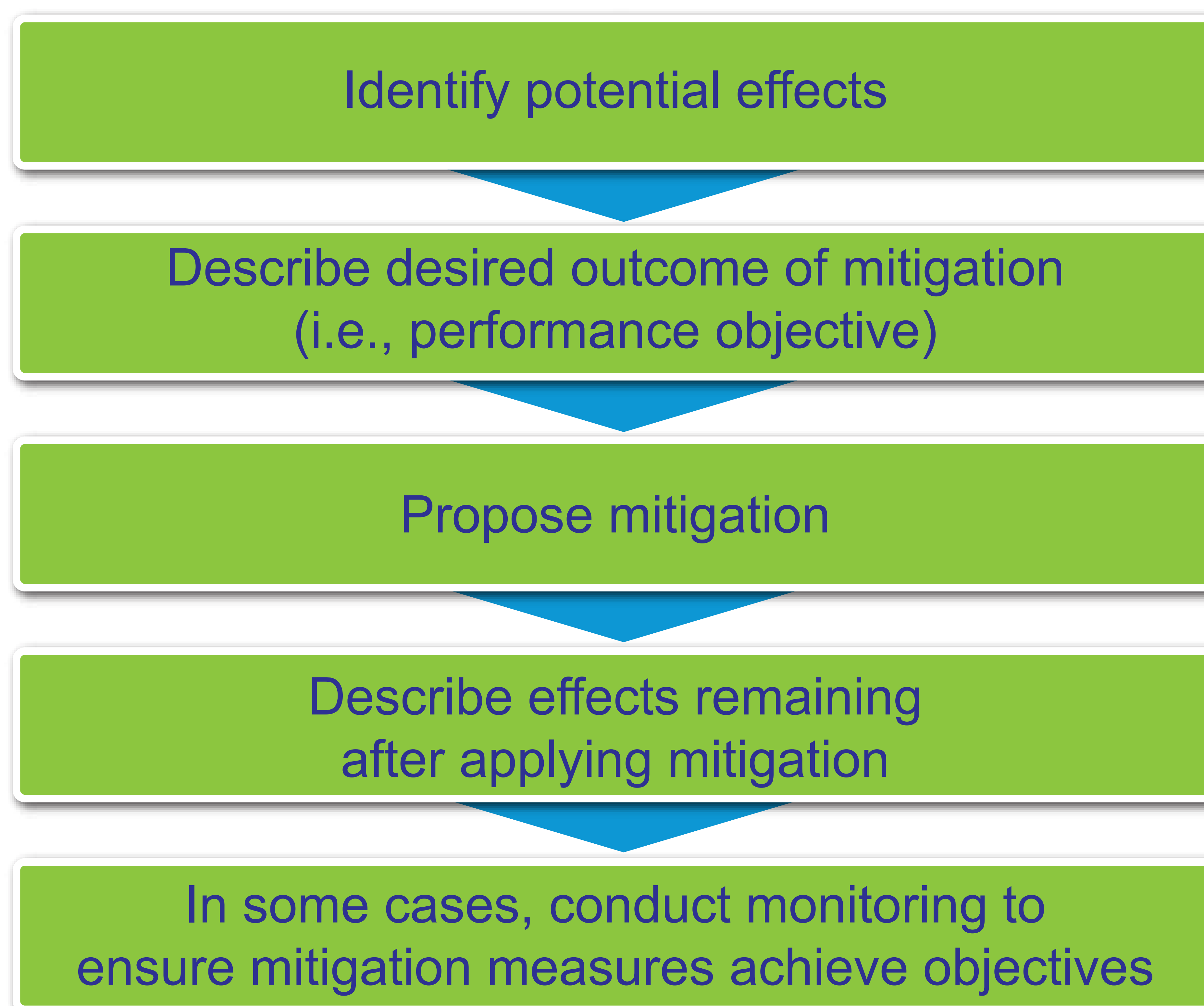
**Ontario College of Family Physicians, Registered Nurses Association of Ontario, Canadian Association of Physicians for the Environment, Physicians for Global Survival, the Asthma Society of Canada, and the Lung Association.

Effects Assessment

Potential effects were assessed based on the following:

- ✦ Archaeological sites;
- ✦ Natural Heritage (e.g. birds, bats, wetlands etc.);
- ✦ Water Bodies;
- ✦ Cultural Heritage features; and
- ✦ Noise.

The diagram below shows the process followed for the effects assessment:



Archaeological Studies – East Durham Project

A Stage 1 Archaeological Assessment was conducted to establish if any known archaeological sites exist in or near the Project Location. Where the Stage 1 findings showed that there is archaeological potential, a Stage 2 Archaeological Assessment was completed to identify any archaeological resources and confirm if further studies are required. A Stage 3 Archaeological Assessment will be conducted if a location has cultural heritage value or interest that needs further study or additional mitigation measures to protect the resource.

Stage 1 Key Findings:

- The potential for discovering Aboriginal and Euro-Canadian archaeological resources was deemed to be moderate to high;
- Important features included: drinking water sources, areas of flat landscape, soils for agricultural purposes, known archaeological sites and Euro-Canadian historic documents; and
- Evidence exists for both Aboriginal and Euro-Canadian use of the area over time.

Stage 2 Key Findings:

- 3 archaeological sites were identified which were 19th Century Euro-Canadian historic locations; and
- Stage 3 Archaeological Assessments were recommended for these 3 sites.

Stage 2 field survey was conducted in accordance with the Ministry of Tourism, Culture and Sport's *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011) as well all recommendations for Stage 3 Archaeological Assessments were also made in accordance with these guidelines.



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Cultural Heritage – East Durham Project

- A Cultural Heritage Assessment was conducted using historic research, mapping, field surveys and consultation with local historians;
- No protected properties or protected cultural heritage landscapes were found in the Project Location;
- 49 features (42 built and 7 landscape) were identified within the Project Location. Overall there are no built heritage features or landscape features that will be impacted by the proposed project; and
- McKechnie Cemetery is located adjacent to the proposed laydown area and a Met Tower. Temporary use of the laydown area and distance to the Met Tower results in little or no impact. Will mitigate by returning the laydown area to its pre-construction condition or better.



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Water – East Durham Project

- A Water Assessment was conducted to identify water bodies within 120 m of the Project Location. A water body includes a lake, permanent stream, intermittent stream and seepage area, defined under O.Reg. 359/09.
- 52 water bodies were identified within 120 m of the Project Location through desktop research and field investigations. Of these 33 were deemed not to fit the definition of a “water body” and no further assessment was conducted on them.
- Key Findings
 - ✦ 19 water bodies are located within 120 m of propose project infrastructure (turbines, substation, met towers, collection lines, access roads, etc.)
 - ✦ 13 intermittent or permanent streams (2 of which include seepage areas)
 - ✦ 5 seepage areas
 - ✦ 3 natural ponds

Potential Effects and Mitigation

The table below presents an example of the potential effects and mitigation:

Project Phase	Potential Effects	Mitigation Measures
Construction/ decommissioning	Erosion and sedimentation from clearing vegetation	Erosion blankets, erosion control fencing and straw bales will be used to control erosion and prevent soil from entering watercourse.
	Dewatering	Control of pumping rate and timing; control of quantity and quality of stormwater discharge; timing of construction to avoid periods of habitat use where applicable; and filtration of groundwater (if required) prior to discharge.
	Soil compaction which could increase water runoff into watercourses	Changes in land contours and natural drainage will be minimized and temporary storage basins installed to allow water infiltration, or permanent stormwater management facilities used as necessary.
Operations	Water contamination from accidental spills associated with maintenance activity (unlikely to occur).	Spill response plan will be developed and an emergency spill kit kept on site. Any spills will be reported to the Ministry of the Environment and local municipalities.