

APPENDIX 'A'

Eastern Kings Phase 2 Wind Project Project Description

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1.0 Project Description

1.1 Project Location

The Project is located on the northeastern tip of the Province of PEI between Elmira and East Point, Kings County (Figure 1). It is within the Rural Municipality of Eastern Kings, approximately 20 kilometers east of the Town of Souris. Coordinates for the turbines are summarized in Table 1.

PEI Energy Corporation - Eastern PEI Wind Facilities

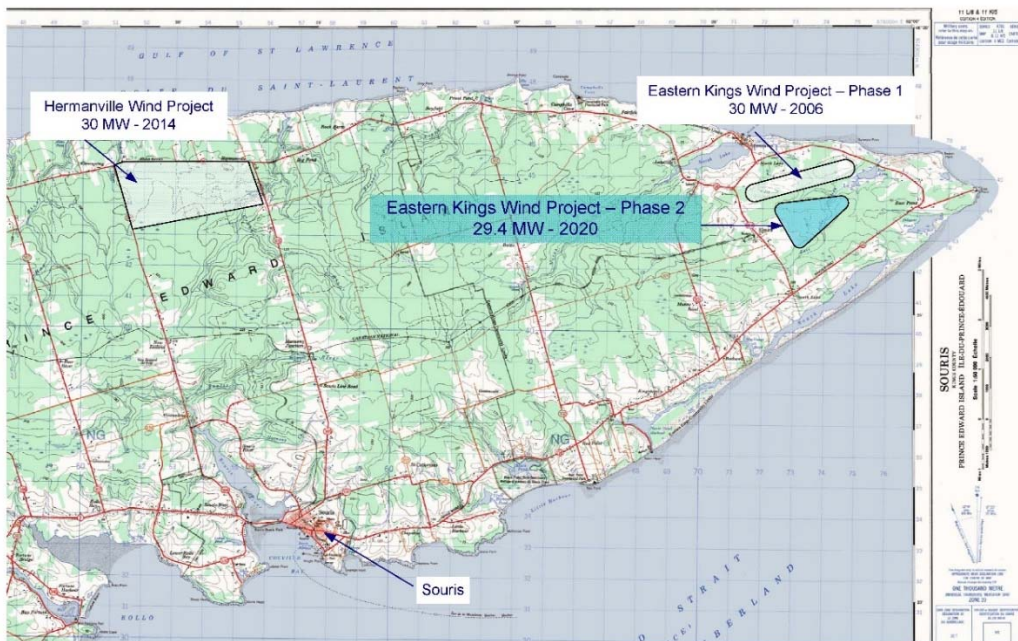


Figure 1

Table 1 UTM Geographical Coordinates

Turbine Name	UTM Zone 20	
	Easting	Northing
T1	572895	5143987
T2	573410	5144075
T3	573969	5144214
T4	574571	5144208
T5	575015	5144142
T6	573486	5142950
T7	573866	5143231

Note: UTM Zone 20, in NAD 83 datum

1.2 Capacity of Wind Plant

1.2.1 Nominal Capacity

The Project will be implemented in one stage. This stage will consist of the installation of seven (7) wind turbines (T1, T2, T3, T4, T5, T6, and T7) with a capacity of 4.2 MW each, generating a total of 29.4 MW of electrical power.

1.2.2 Expected Annual Energy Production

The expected annual energy production of this Project is 120 gigawatt-hours per year (GWh/year).

1.3 Construction Schedule

The estimated construction schedule is depicted in Table 1.2.

Table 1.2 Proposed Construction Schedule

30 MW of Wind Power	Date
EIA Completed	October 2019
Geotechnical Engineering Information for Wind Turbine Site	December 2019
Clearing of Project Area	February 2020
Grubbing and Access Road Construction	May – June 2020
Wind Turbine Site Foundation Construction	June – July 2020
Wind Turbine Erection	August – September 2020
Substation Upgrade	June-July 2020
Collector System	May-July 2020
Commissioning of Wind Turbines and Substation	October 2020

1.4 Summary of Project

The Project will consist of installing seven (7) wind turbines, each rated at 4.2 MW for a total nameplate production of 29.4 MW and the typical ancillary components for a wind plant; including access roads to each turbine and an overhead electrical collector lines to connect the turbines to an existing substation.

The turbine generators operate at 630 Volts. A transformer in the tower converts this to 34,500 Volts. Underground cables will connect the wind turbine to a pole 50 – 75 meters from the base of the tower that connects to the collector line that runs through the wind plant and connects to the collector system of the existing Eastern Kings Wind Plant. The existing substation transforms the incoming voltage to 138,000 Volts for connection to Maritime Electric's transmission system. The substation, built in 2006, will be upgraded to increase capacity to accommodate the larger capacity.

Roads will be constructed to transport the turbine components, and the equipment to install them, through the site. Approximately 6,000 meters of road will be constructed. Roads will be, nominally 6 meters wide with long radius turns to allow the large equipment to navigate safely. The road will be constructed with, locally available, select borrow and topped with imported Granular 'A' gravel.

Road construction and the construction of the electrical collector system will commence in May 2020 and conclude in July 2020. Wind turbines and their components will be delivered through the port of Souris

where they will be temporarily stored for several days. They will then be transported, one complete turbine per day (each requiring 12-15 large trucks) will arrive in August and be installed through September 2020. The wind plant will be operational in October 2020.

1.5 Location of Project

The site selected for the Project is located between Elmira and East Point, on the northeastern tip of the Province of PEI, in Kings county ((UTM Zone 20, 573,627 m Easting; 5,143,708 m Northing).

The Project is located approximately 2.0 km inland with an elevation varying from 18 to 33 m and covers approximately 140 ha. There are approximately 20 different properties within the project area. The project area is composed of forested land that is predominantly mixed. The surrounding, unforested land, is generally used as agriculture.

Figure 2 presents an overhead aerial photo showing the detailed location of all Project components and activities. These include turbine locations, connection cables, access roads, transmission lines and property delineations. The electrical connection from the facility will interconnect with an existing collector line and substation on an existing wind project.

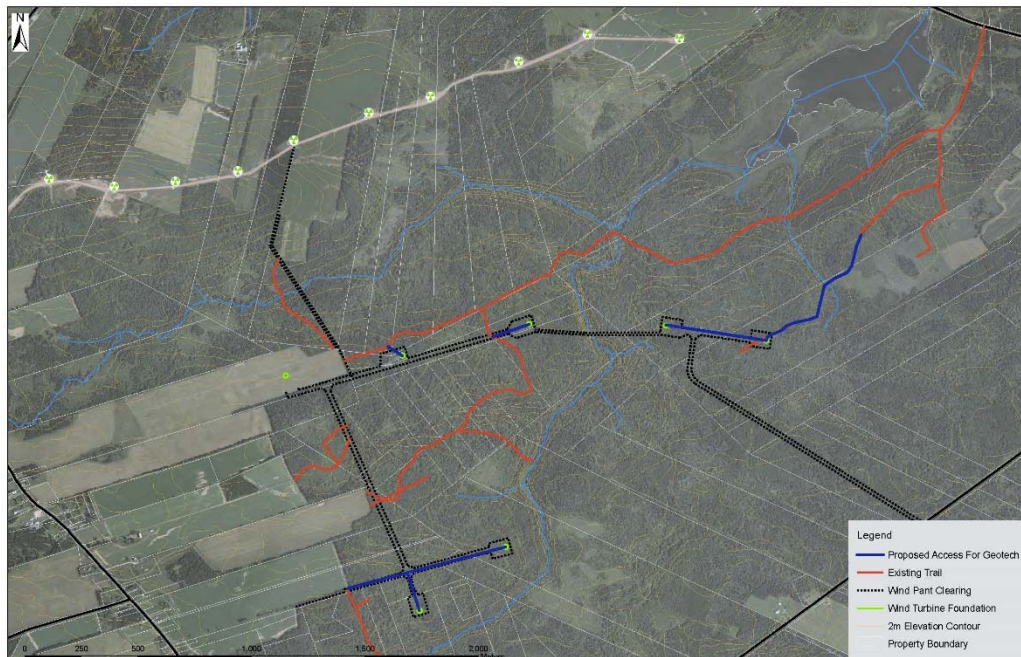


Figure 2

1.5.1 Construction Phase

Final engineering and design will take place during the winter of 2019/2020. The construction component of the Project will begin in the winter of 2020 when the clearing will be carried out³. Construction work will begin in the spring of 2020, with road construction, electrical line construction, foundation installation carried out between May and August. Turbine delivery will commence in August and be completed by October. Turbines will be commissioned and operational by December.

The construction process will include:

- Clearing
- Access road construction.
- Construction of crane pad, lay-down areas and turbine foundations.
- Substation upgrade.
- Installation of collector lines from turbines to substation.
- Installation of turbines.
- Testing and commissioning of turbines.
- Removal of all temporary works and restoration of site.

All electrical installations and materials will be compliant with the Province of PEI's *Electrical Inspection Act* and the Canadian Electrical Code.

All construction activities will be governed by the Project Environmental Protection Plan (EPP). Site-specific EPPs (SSEPPs) will be developed for each turbine construction site.

1.5.1.1 Clearing

The first construction activities will be clearing through the winter months. In the spring, temporary construction facilities will be installed, access roads will be grubbed and constructed of, immediately followed by the installation of power lines, turbine foundation sites.

1.5.1.2 Access Roads

All access roads and underground/overhead cables will be located so as to minimize their impact on the environment. All-season, unpaved access roads will be required to access each turbine location from existing public roads during the construction, operation and decommissioning phases of the Project. Access to the Project will be through two roads, one from the Elmira Road and one from the East Point Road. Access roads will be approximately 6 m wide with a 1 m shoulder on each side, with a typical clearing of 20 30 m depending on the utility requirements.

The collector lines from the turbines to the substation will be buried when they exit the turbine and then convert to overhead lines for return to the substation. Within the site there are two watercourses to be crossed with a collector line. If pole placements are required in wetlands, untreated poles (wood, fibreglass or steel) will be used. In addition, ditching and cross drainage will likely be required.

The following steps are involved in the construction of access roads:

- Tree clearing will be conducted by qualified contractors. Merchantable timber will be salvaged where practical. Non-merchantable fiber will be mulched and spread on-site.
- Land will be grubbed by a qualified contractor using typical construction equipment such as excavators, bulldozers and trucks. Grubbed material may be removed for disposal in the borrow pit or mulched and distributed on site.
- Borrow material will be used to build the roads to grade.
- Granular A gravel will be spread on the surface of the road. The road surface will then be compacted to provide a smooth, erosion-resistant, safe surface.

Where necessary, prior to any site work within 10 m of a watercourse and/or wetland, a Watercourse, Wetland and Buffer Zone Alteration Permit (WWBZAP) will be obtained.

It is estimated that roads will require approximately 14 ha of forest clearing.

Foundations

A spread-foot foundation design will be used for the turbines. The excavated hole for each turbine base will be approximately 25 m by 25 m. They will be excavated to a depth of 3 m. Each turbine base will require an estimated 500 cubic metre (m³) of concrete. The base will be approximately 20 m in diameter.

The foundation itself will then be backfilled and compacted with selected fill and subsoil. The foundations will cure before tower erection.

Following the erection of the towers, disturbed areas adjacent to the work area will be re-seeded with existing native crops as appropriate.

1.5.1.3 Collector Circuit

Each turbine will be connected to the substation by a combination of underground or overhead (34.5 kV) cables.

Underground cable will be installed, in conformance with industry standards. A backhoe will dig a trench measuring approximately 1.0 m wide and 1.5 m deep (below the frost line). The bottom of the trench will then be covered with a layer of sand before laying the cable. The cable is protected by covering it with planks prior to backfilling and applying magnetic warning tape. Metal signage will be used to mark the location of the buried cables.

1.5.1.4 Delivery of Equipment

Wind turbines components will arrive in August and be installed through September 2020. The wind plant will be operational in November 2020.

1.5.1.5 Wind Turbine Assembly

At each turbine location a lay-down area for blades will be constructed in addition to an assembly location for tower components. A reinforced crane pad will also be built adjacent to each turbine site.

Based on the proposed locations of the turbines, it is recognized by the Proponent that this typical installation may require site-specific modifications to accommodate possible environmental constraints.

1.5.1.6 Turbine Commissioning

The final activity of the Construction Phase consists of testing prior to start-up and physical adjustments to the turbines.

1.5.2 Operation Phase

The turbine operating life is 25 years, but life extension options may be possible and will be considered.

1.5.2.1 Road Maintenance

During the operation of the wind farm, the access roadways will be maintained at a level suitable to boom truck-sized vehicles, but on a level below that required for heavy cranes. Re-grading and rolling of the access road may periodically be required to maintain it for heavy lifting equipment (in case of major repairs). Ditches along the road will have to be regularly maintained as well.

1.5.2.2 Turbine Operations

Operation of the wind farm will commence when the required approvals and authorizations are in place to supply energy into the grid.

The wind turbines operate in wind speeds from 3 metres per second (m/s) to 25 m/s. When wind conditions outside the operating range, the turbines cease operation until wind speeds return to the operating range.

1.5.3 Decommissioning Phase

If the proposed wind farm has reached its useful life and is not being considered for repowering, decommissioning plans will be put in place and initiated one to two years prior to terminating operations. This is in part due to the specialized nature of the turbine equipment being decommissioned, as well as the timelines required to efficiently reclaim and restore the remaining access roads and sites back to their original state.

The turbine systems will be disassembled systematically starting with the nacelle, hub and blades with the tower structure to follow. A critical aspect of decommissioning activities will involve disposal or disposition of the turbine components and equipment. It is difficult to predict demand and future value for these components and raw materials in 20-25 years, however, PEIEC is fully responsible for ensuring safe removal and transport of any turbine components and materials from project sites. If decommissioning is chosen, it will be done while adhering to all requirements of the appropriate governing authorities and will be done in compliance with all applicable local, provincial and federal permits.

Table 1 illustrates the sequence of decommissioning events that must occur in order to restore the project sites and affected land back to its original state. Prior to tendering decommissioning contracts and activities, PEIEC will have been active in discussions with the Rural Municipality of Eastern Kings and participating landowners well in advance of making any final decisions. It should be noted that the tasks outlined in Table 1 are an estimate and can be affected by contractor availability and safe wind speed conditions.

Task	Activity Description	Duration
1	Site preparation	1 Month
2	Removal of blades, nacelle and hub, tower sections	2-3 Months
3	Foundation removal - 1m below grade	1-2 Months
4	Removal of Collector system	1-2 Months
5	Removal of any substation components	2 Months
6	Operations building and access road rehabilitation	6 Months

Table 1: Decommissioning Activities

Decommissioning (Task 1) – Site Preparation

Over the duration of the windfarm's operation, road and turbine pad site conditions may have deteriorated and will need to be addressed prior to mobilizing heavy lift crane equipment. Additional road building material and gravel may be required in order to upgrade portions of the road and turbine pad sites. Weather and seasonal conditions may also play a factor in the timing of this work.

Decommissioning (Task 2) – Removal of Turbine

First, each turbine being prepared for disassembly will be safely disconnected and isolated from the electrical collector system. Removal of the turbine components will involve similar heavy lift crane equipment to what was used during installation. The blades, hub and nacelle will then be removed from the tower section. It should be noted that the turbine model being considered for the Eastern Kings, Phase II expansion utilizes a gearless drive and electric pitch motors which will significantly reduce the need for hydraulic fluid handling and disposal. In general, any lubricants or fluids used in operation will be safely handled according to specific MSDS procedures and will be recycled or disposed of in accordance with regulations outlined in the Environmental Protection Act. Heavy trucking equipment will then be required to remove all turbine components and will be taken to a pre-determined storage site for further disassembling and disposal/disposition.

Decommissioning (Task 3) – Foundation removal

With tower sections removed, foundation pedestals will be removed to bring the upper section of the foundation a safe distance below ground level to allow original land function to be resumed. New topsoil will be delivered and the site re-contoured to original grade to allow original land use activities to be resumed. Any contaminated soils or debris from the foundation demolition will also require removal and appropriately licensed disposal. This will allow for safe restoration of the foundation footprint such that it does not impede any agricultural, or public activity. With landowner approval, any ground contouring will ensure proper drainage, with the disturbed areas to be re-vegetated using native seeds and plants.

Decommissioning (Task 4) – Collector system removal

In the case of Eastern Kings, Phase II, all above ground collector lines that connect each turbine to the substation and power transformer will be removed. Valuable conductor material may be recycled or re-used and will be trucked offsite with any other collector components (switches, insulators etc.). The supporting collector line poles will be removed, with holes to be filled in with soil. In areas where removal of poles would cause environmental concern, poles may be cut just below grade and filled in with soil. Any salvageable material from the collector line poles will be reused or recycled.

Decommissioning (Task 5) – Substation component removal

Eastern Kings wind farm, Phase I and II, will both utilize the existing substation installed off Elmira Road. Assuming both farms are to be de-commissioned together, the substation will first be electrically isolated and disconnected from the collector system and Maritime Electric's grid. Electrical components, steel support structures and batteries will be removed from the site and recycled if they cannot be reused. As noted with the turbine foundation, new topsoil will be delivered and the site re-contoured to original grade to allow original land use activities to be resumed. Any buried electrical lines will be removed and backfilled, with the overall footprint of the substation to be re-contoured with top soil to re-introduce vegetation.

Decommissioning (Task 6) – Operations buildings & Access roads

The final stage of decommissioning will involve removal of the access roads and operations buildings. Access roads will be returned to the original soil conditions as was present prior to construction. Any operational buildings or associated infrastructure at this stage in the decommissioning phase will be removed and returned to site conditions prior to development of the proposed wind farm.

