1.0 Project Description

The Oakfield Wind Project (Project) consists of 34 turbines in 36 potential locations and approximately 12 miles of associated 34.5-kilovolt (kV) collector line located in Oakfield, Aroostook County (Figure 1). The Project also includes access roads, permanent meteorological (met) towers, an electrical interconnection substation facility to tie to the existing Maine Public Service (MPS) transmission line, and an operations and maintenance (O&M) building. The total project area is approximately 600 acres inclusive of a 150-foot buffer measured from the edge of the Project roadways and turbine pad sites.

The turbine portion of the Project consists of 34 General Electric 1.5-megawatt (MW) turbines located in a northern and southern array along Sam Drew Mountain and other ridges in the Oakfield Hills, with the potential to produce up to 51 MW of electricity. The application includes two alternate sites, one in the north (N09alt) and one in the south (S09alt), that may be used in lieu of sites N09 and S09. Each turbine is 262 feet to the center of the hub and a total of 389 feet to the tip of a fully extended blade. There will be 4 permanent 80-meter met towers, as well as temporary 80-meter met towers at certain turbine locations during initial testing. The majority of the land utilized for turbine sites is presently used for commercial forestry operations and contains developed logging roads that will be upgraded and used, where appropriate, to minimize clearing and wetland impacts. The project will be accessed via a network of new roads and upgraded existing roads. Roadway widths will be between 12 and 32 feet based on use. Uses consist of met tower access roads (12'), an access road to the project substation (16'), haul roads for turbine component delivery (24'), and crane roads for turbine construction along on the ridgelines (32'). There will be a total of approximately 15.3 miles of project roads, of which approximately 2.2 miles will be upgraded existing roads of varying quality.

Power from the turbines will be collected in an overhead 34.5-kV collector line and delivered to a substation at the north end of the project. At the substation, the power will be converted to 69 kV for interconnection to the existing MPS 4407 transmission line. The 4407 line is currently operating at 44 kV. The operating voltage will be upgraded to 69 kV from the new project substation on Ridge Road to the MPS Mullens Substation in Houlton. No infrastructure upgrades to the existing 4407 line are necessary outside of the construction of the new project substation. The 34.5-kV collector line will be a combination of single and double circuit mounted to single pole structures.

Environmental studies completed before filing include two seasons of avian and bat surveys; wetland delineations of the affected areas; and "in season" vernal pool surveys. Additional reports and surveys include an analysis of historic architecture, Euro-American and Pre-Contact archaeology, visual impact analysis, shadow flicker analysis, sound analysis, and soils evaluation.

The final design for the project includes approximately 8,790 square feet of wetland clearing, 2,440 square feet of permanent wetland fill associated with road widening, 715 square feet of temporary fill for timber mats during construction, and 66 linear feet of stream impact for a culvert crossing, summarized below. Appendix 1-1 includes details of the impact locations. There are no impacts to vernal pools, Significant Vernal Pools, Inland Waterfowl and Wading Bird Habitats, Deer Wintering Areas, or other Significant Wildlife Habitats.

Table 1-1. Wetland and Stream Impact Summary for Oakfield Wind Project

Wetland Impacts	Permanent fill (sq. ft.)	Temporary fill (mats, sq. ft.)	Vegetation clearing (sq. ft.)	Stream impact--- culvert (lin. ft.)
Summit roads	2440		3590	66
Electrical Collection System	---	715	5200	---
TOTAL	**2440**	**715**	**8790**	**66**

2.0 Construction Plan

Construction is expected to take eight months from the commencement of construction, with the project fully operational in 2010. Construction of the summit portion of the project will generally follow the sequence of events detailed below.

1. Mobilization and preliminary layout and staking of new road segments, turbine clearings, laydown areas, O&M building, and substation site.
   Week 1 – Week 4
2. Commence clearing operations for roads, laydown areas, transmission lines, O&M building, and substation. Installation of erosion control measures in areas specified or required.
   Week 3 – Week 8
3. Installation of erosion control measures in areas specified or required.
   Week 4 – Week 15
4. Stumping, grubbing, and initial rough grading for roads and turbine laydown areas.
   Week 5 – Week 16
5. Blasting as necessary and on-site stockpiling of reusable blasted bedrock/ledge.
   Week 6 – Week 18
6. Stockpiling of imported road aggregate from local borrow pits (if required).
   Week 7 – Week 19
7. Final grading for roads and turbine areas.
   Week 7 – Week 20
8. Construction of turbine foundations and substation transformer pad.
   Week 11 – Week 24
9. Installation of overhead/underground 34.5-kV on-site electrical collector system, including pad-mount transformers.
   Week 13 – Week 30
10. Delivery of turbines components to individual turbine sites.
    Week 16 – Week 26
11. Erection of base/mid tower sections, assembly of rotors, erection of top tower section and nacelle, erection of assembled rotor. Tower wiring, final cleaning, and final quality checks of wind turbine.
    Week 18 – Week 30
12. Substation and O&M building construction.
    Week 16 – Week 31
13. Energization of substation and collector system with quality checks, “backfeed” power available from Line 56 and 115-kV transmission line.
    Week 32
14. Commissioning and testing of wind turbine generators and electrical interconnections.
    Week 32-Week 40
15. Start of commercial operations.
    Week 40
16. Reseeding of temporary cleared areas.
    Week 30 – Week 42

The construction of the 34.5-kV collector line between the parts of the project and connecting to the substation will follow a similar schedule, detailed below.

1. *Right-of-Way Centerline and Boundary Flagging* – Surveyors follow the right-of-way and flag property lines, clearing limits, easements, laydown areas, and the centerline of the transmission line.
2. *Wetland and Resource Flagging* – Wetland scientists follow the right-of-way and flag the wetland boundaries, buffer setbacks, and other sensitive areas.
3. *Tree and Brush Clearing* – Harvesting crews cut and remove trees and brush from right-of-way areas and laydown areas.
4. *Installation of Erosion Control* – Contractor installs various silt fence, hay bales, erosion control berms, and other best management practices along right-of-way and laydown areas.
5. *Stump Grubbing at Laydown Areas* – Stumps are removed at laydown areas, and where required, along access corridor, and areas for storage of equipment and materials are created.
6. *Temporary Access Ways and Timber Matting at Wetlands* – Minor earthwork activities are performed as needed to allow access along right-of-way and installation of timber matting at wetland areas where they are required to prevent excessive rutting.
7. *Grubbing of Stumps at Pole and Pulling Locations* – Stumps are removed as needed around pole locations and pulling areas to provide safe work area.
8. *Framing of Hardware on Poles* – Contractor installs davet arms, insulators, and other necessary hardware on each pole, usually prior to installation of pole.
9. *Excavation for Each Pole* – Contractor augers, excavates, or blasts (depending on subsurface conditions) hole for pole and any other subsurface requirements (guy anchors) per the design documents.
10. *Setting of Poles* – Poles are lifted and set into previously excavated hole.
11. *Setting of Anchors and Guy Wires* – Anchors at dead-end and corner poles are installed in the ground; guy wires are attached to pole and anchors.
12. *Pulling and Stringing of Wire* – Wire is pulled from spools and connected to poles in segments approximately three miles in length.
13. *Sagging and Clipping of Wire* – Previously strung wire is adjusted for equal sag and strain on the poles and then clipped to the insulators with the proper tension in the wire.
14. *Energizing of Line* – Line is energized at the switch and checked. This provides “backfeed” power to the substation, which can then be subsequently energized.
15. *Removal of Matting* – Matting is removed from wetland areas.
16. *Cleanup and Restoration* – Temporary earthwork and topsoil disturbances are restored and areas are seeded and mulched. Temporary erosion control measures are removed upon permanent stabilization and reseeding of disturbed areas.