

**M**

**Decommissioning Plan**

## **Decommissioning Plan**

### **A. Decommissioning Process Description**

#### **Equipment Removal**

1. Turbine Removal – Appropriate sized cranes will be mobilized and the hub with blades and nacelle will be removed to ground level for a scrap company to breakdown and strip high value components. The remaining material will be reduced to shippable dimensions and transported off site for proper disposal. The internal cabling will be removed and stored prior to delivery to a scrap company for recovery of high value copper conductor materials. The tower sections will be lowered to grade so they can be cut into transportable sections for delivery to a scrap iron purchaser. Control cabinets in the base will be stripped of high value components and the balance turned over to a scrap company for haul and disposal. The area will be thoroughly cleaned and all debris removed.
2. Pad Mount Removal – Cables will be disconnected from the transformer and high value reusable components will be recovered from the terminations. Cables between turbine base and transformer will be removed and stored prior to delivery to a scrap company for recovery of high value copper conductor materials. The pad mount will be removed from the base and placed on a truck which will deliver the unit to a specialty company for scrap out or refurbishment depending on market. The area will be thoroughly cleaned and all debris removed.
3. Overhead Collection Lines – Conductors will be removed and stored prior to delivery to a specialty scrap company for recycling. Switches and other hardware will be removed and delivered to a processing company for recycling of materials. Poles will be removed and holes filled with proper materials. Poles will be delivered to a facility for proper disposal. The area will be thoroughly cleaned and all debris removed.
4. Substation – For the equipment and area owned by the permittee, steel, conductors, buss work, switches, etc. will be removed and delivered to scrap company for disposal and recycling of materials as appropriate. Breakers and control panels will be stripped of high value components and balance turned over to scrap company for haul and disposal. The transformer will be removed from the base and placed on a truck which will deliver the unit to a specialty company for scrap out or refurbishment depending on market. The area will be thoroughly cleaned and all debris removed.

#### **Foundation Removal**

1. Turbine Foundations – Top soil will be removed to a proper storage pile to expose sub-grade materials, and that area will be excavated to expose the turbine foundation pedestal. All anchor bolts, rebar, conduits, and concrete in the pedestal will be removed to 48” below grade. After removal of all noted foundation materials, the holes will be filled with clean compatible sub-grade material that is compacted to a density similar to the surrounding fields and then

- covered with the topsoil from the protected stockpile of material. All unexcavated areas compacted by equipment used in the decommissioning shall be tilled in a manner adequate to restore the topsoil and sub-grade material to the proper density – consistent with the surrounding fields. The area will be thoroughly cleaned and all debris removed.
2. Pad Mount Base - Top soil will be removed to a proper storage pile to expose sub-grade materials, and that area excavated to expose the pad mount foundation or pre-cast support vault. All anchor bolts, rebar, conduits, and concrete in the foundation or pre-cast support vault will be removed to 48” below grade. After removal of all noted foundation materials, the holes will be filled with clean compatible sub-grade material that is compacted to a density similar to the surrounding fields and then covered with the topsoil from the protected stockpile of material. All unexcavated areas compacted by equipment used in the decommissioning shall be tilled in a manner adequate to restore the topsoil and sub-grade material to the proper density – consistent with the surrounding fields. The area will be thoroughly cleaned and all debris removed.
  3. Substation Area – For the area owned by the Applicant, top soil will be removed to a proper storage pile to expose sub-grade materials, and the area excavated to expose the substation area foundations. All anchor bolts, rebar, conduits, and concrete in the foundations or pre-cast components will be removed to 48” below grade. After removal of all noted foundation materials, the holes will be filled with clean compatible sub-grade material that is compacted to a density similar to the surrounding fields and then covered with the topsoil from the protected stockpile of material. All unexcavated areas compacted by equipment used in the decommissioning shall be tilled in a manner adequate to restore the topsoil and sub-grade material to the proper density – consistent with the surrounding fields. The area will be thoroughly cleaned and all debris removed.

### **Underground Electrical Collection System**

The underground electrical collection system will be designed and installed such that the main conductors will have a minimum of 48” of cover. The design includes the installation of a warning tape and tracer cable system to warn anyone who may be digging in the area both during plant operations and after decommissioning. The design is planned for safety by getting sufficient cover to ensure that they will not be disturbed during normal agricultural operations.

Cables will be cut back in the area of the pad mounts to a minimum of 48” below grade and abandoned in place. The cables contain no materials known to be harmful to the environment.

### **Roadways/Rigging Pads**

After completion of the decommissioning activities at each of the turbine sites, access road and rigging pad removal shall commence. Gravel will be removed from road and rigging pad surfaces to be transported from the site to an approved disposal location. The disposal location will be approved by the appropriate

governing authority prior to the start of the decommissioning program. Geotextile fabric (a tightly woven separation fabric placed during construction on the sub-grade under the gravel to keep the gravel from being pushed down into the sub-grade during wet periods) will be recovered and hauled offsite to an appropriate disposal site. All drainage structures including rip-rap, etc. will be removed and backfilled with clean, compatible sub-grade material. All road and other areas compacted during original construction or by equipment used in the decommissioning shall be tilled in a manner adequate to restore the sub-grade material to the proper density and depth consistent with the surrounding fields. Low areas will be filled with clean, compatible sub-grade material. After proper sub-grade depth is established, topsoil will be placed to a depth and density consistent with the surrounding field. Landowners, especially in agricultural areas will have the option for access roads and associated drainage facilities to remain in place for their use.

Access security gates will be maintained at all times until the road removal process is complete and the area is ready to be demobilized. The gate shall be removed and all materials recycled to the greatest extent possible. The ditch crossing will be removed **if requested by the landowner** and approved by the applicable highway authority. The area will be thoroughly cleaned and all debris removed.

All decommissioning activities shall be performed in accordance with all applicable federal, state, and local requirements in effect at the time of the plant decommissioning.

### **Financial Security for Decommissioning Costs**

As detailed below, Noble has carefully estimated the costs of decommissioning Project components, salvage values for various components, and a net decommissioning cost per turbine. In accordance with Town of Chateaugay and Bellmont local laws regulating wind energy facilities ("Local Laws"), Noble will establish financial security in a form acceptable to the Towns in an amount equal to the total estimated net cost of decommissioning specified below, or as periodically adjusted in accordance with the Local Laws.

Applicant will establish a financial security instrument acceptable to each Town prior to construction of the facility in the amount of \$13,600.00 per WECS, renewable on an annual basis and reviewable every three years during Project operations in accordance with local laws.

### **Revegetation and Reseeding**

All Project areas not under cultivation or reserved for some other use by property owners will be revegetated or reseeded, as appropriate.

### Wind Turbine Decommissioning Costs:

#### Remove Towers

200 man-hours @ \$65.00/hr. = \$ 13,000.00

Crane: 5 days @ \$2,900.00 = \$ 12,500.00

**Total = \$ 27,500.00**

#### Remove Concrete to 4' Below Grade

100 man-hours @ \$65/hr = \$ 6,500.00

Equipment: 3 days @ \$1,500.00/day = \$ 4,800.00

**Total = \$ 11,000.00**

### Removal of Access Roads:

Dozer: 8 hours @\$100.00/hr operating cost = \$ 800.00/day

Loader: 8 hours @ \$90.00/hr operating cost = \$ 720.00/day

Dump Trucks: 3 trucks @ 8 hours each  
@ \$60.00/hr operating cost = \$ 1,440.00/day

Total Equipment cost \$ 2,960.00/day

USE \$ 3,000/day

Total Equipment Cost for one turbine removal  
operation 3 days time @ \$3,000/day equipment  
cost =

\$ 9,000.00

1. Labor Cost:

2. Equipment operators at 24 hours each man = 48 hours  
48 hours @ \$65.00/hour = \$ 3,100.00

3. Truck Drivers at 24 hours each man = 72 hours  
72 hours @ \$50.00/hour = \$ 3,600.00

Total Labor Cost \$ 6,700.00

**Total Labor and Equipment Cost for Access Road Removal \$15,700.00**

### Estimated Salvage Cost Per Each Unit:

1. Salvage Value of Nacelle

• Estimated Value per each Nacelle: **\$5,000.00**

2. Scrap Value of Tower Steel

• Estimated Final Value of Steel Per Tower: **\$38,000.00**

**Sub-Total: \$43,000.00**

**Seeding and Revegetation**

80 man-hours @ \$30.00/hour = \$ 2,400.00

**Total Seeding and Revegetation Cost Per Site \$ 2,400.00**

**Total Estimated removal Cost Per Each Unit: \$56,600.00**

**Less Total Estimated Scrap Value Per Each Unit: \$43,000.00**

**Total Value in Escrow for Decommissioning Project: \$13,600.00 per WECS**