

## **APPENDIX A DESIGN CRITERIA PRESENTED BY RESOURCE AREA**

This Appendix provides a summary listing of all design criteria proposed for the Project. As described in section 1.1 of the DEIS, design criteria represent standard, routinely implemented management practices which have been designed into the construction and operation of the proposed activity. These criteria, if implemented, would tend to avoid or minimize potential impacts to resources beyond that which would be achieved from the application of GMNF's 2006 *Land and Resource Management Plan* (Forest Plan) Standards and Guidelines alone. For example, requiring the use of silt fencing and haybales to further control erosion and sedimentation would be specific design criteria developed to minimize impacts.

Certain design criteria may be applicable to many different resource areas as noted below. One design criteria utilized in implementation of all activities would be oversight provided during and after construction. It is expected that the Proponent, in coordination with the Forest Service, would employ one or more individuals to assist in oversight during construction. Likewise, upon completion of construction, a Forest Service special use permit administrator would oversee the terms and conditions of the special use permit during Project operation.

The following is a summary of proposed design criteria, presented by resource area, which would be implemented in order to avoid or minimize potential environmental impacts.

### **3.1 Land Use**

- None proposed.

### **3.2 Geology and Soils**

- A Stormwater Management Plan would be developed for construction plans and permits detailing structures such as ditches, water bars, culverts and temporary sediment basins.
- An Erosion Prevention and Sediment Control Plan (EPSCP) would be developed for soil, water and riparian area protection. The EPSCP should include, but not be limited to, carefully defined measures such as:
  - Soil protection and restoration measures will be shown on proposed Project plans and documentation, copies of which will be provided to the general contractor and all subcontractors.
  - Prior to the start of work, all wetlands, surface water bodies and identified sensitive resources within and adjacent to construction activities will be shown on plans. Erosion control measures will be placed in the field in accordance with the plans.
  - Identification and use of appropriate erosion control structures
  - Blocking of existing surface water drainage and subsurface drainage features will be avoided during road construction or stockpiling of soils. Any damage to surface and subsurface drainage features will be repaired or replaced.

- Defining restoration techniques for use at the conclusion of construction. Restoration and revegetation will be performed as soon as possible to avoid exposed areas that would be sources of erosion or sedimentation.
- Disturbed areas will be reseeded with appropriate temporary or permanent seed mix of native species following backfilling and final grading.
- Assuring compliance with Vermont Acceptable Management Practices (AMPs) and any stormwater management plans.
- Follow-up inspections of all disturbed areas would be done after the first and second growing seasons to determine the success of revegetation, and to correct problems as needed.
- A Spill Prevention Control and Countermeasure Plan (SPCC) would be developed to minimize the release of oil or hazardous materials into soils and/or bedrock. The SPCC should include, but not be limited to, such measures as:
  - Requiring that fueling or maintenance of equipment (including washing) only be performed in specified areas outside an approved protective strip of predominately undisturbed and vegetated soil
  - Not allowing refueling of construction equipment within 100 feet of any stream, wetland, infiltration basin, or proposed turbine location
  - Reporting any release of oil or hazardous materials immediately upon detection in accordance with all applicable laws and regulations
  - Requiring all contractors to have materials on hand to control and contain a spill of oil or hazardous materials
- A Blasting Plan (BP) would be developed in accordance with all applicable laws and regulations.

### **3.3 Climate and Air Quality**

- Traffic speeds on unpaved access roads would be kept to 25 mph or less to minimize generation of dust.
- A Dust Control Plan would be developed and implemented to to minimize impacts of construction dust. It should include, but not be limited to, measures such as:
  - Minimizing the extent of exposed or disturbed areas on the Project site at any one time
  - Restoring or stabilizing exposed areas would be as soon as practicable
  - Applying water and other dust abatement materials to wet down dusty roads
- Car-pooling among construction workers would be encouraged to minimize construction-related traffic and associated emissions.
- All engines of construction and maintenance equipment would have functional mufflers and limits on idling to minimize emissions.

### **3.4 Noise**

- All engines of construction and maintenance equipment would have functional mufflers in good condition to limit noise.
- Construction and maintenance equipment idling would be minimized to limit noise.

- Hours of construction would be limited from 7 a.m. to 7 p.m. (except for possible extended concrete pours and similar events, and other minor construction activities that may need to extend earlier or later) to minimize noise.

### **3.5 Visual Quality**

- The minimum lighting required by FAA would be used. Lighting would be limited to a single pulsing red light on the nacelle on every other turbine, which would be operated only during nighttime hours.

### **3.6 Cultural and Heritage Resources**

- An Unanticipated Discoveries Plan (UDP) would be prepared to guide responses and outline mitigation measures in the event a potential archaeological site is encountered during Project construction.
- The limits of Project work would be clearly delineated on plans and in the field, either by continual erosion controls measures, fencing, staking and/or flagging.
- Identified cultural / heritage resources would be fully surrounded by appropriate marking, such as temporary fencing, and the areas will be identified as No Access Areas in the field and on Project plans.
- Monitoring of identified cultural / heritage resources areas would continue during construction.

### **3.7 Water Quality and Water Resources**

- A SPCC would be developed to outline procedures that would be implemented to prevent the release of hazardous substances into the environment. See Section 3.2 above.
- An EPSCP would be developed for soil, water and riparian area protection. See Section 3.2 above.
- No Equipment Access Areas would be developed and identified in certain areas to prohibit the use of motorized equipment.
- Restricted Activities Areas would be established as 100 foot buffer zones around streams, wetlands, and infiltration basins.
- Restricted Activities Areas would be noted on the construction drawings and marked in the field during Project construction.
- Restricted Activities would include:
  - No deposition of slash within or adjacent to a stream or wetland
  - No accumulation of construction debris within the area
  - Herbicide restrictions within 100 feet of a stream or wetland (or as required per manufacturer's instructions)
  - No degradation of stream banks
  - No equipment washing or refueling within the area
  - No storage of any petroleum or chemical material

- A Dewatering Plan would be prepared to outline the procedure for infiltrating the pumped water back into the ground in the event that water table penetration occurs during construction.
- The construction footprint would be minimized by defining the work area in the field prior to construction, and adhering to work area limits during construction.
- All blasting would comply with a Blasting Plan in order to minimize the chance of impacting water levels.

### 3.8 Wetlands and Floodplains

- An EPSCP would be developed for soil, water and riparian area protection. See Section 3.2 above.
- A SPCC would be developed to outline procedures that would be implemented to prevent the release of hazardous substances into the environment. See Section 3.2 above.
- No Equipment Access Areas would be developed in certain areas to prohibit the use of motorized equipment.
- Restricted Activities Areas would be established as 100 foot buffer zones around streams, wetlands, and infiltration basins. See Section 3.7 above.
- Restricted Activities Areas would be noted on the construction drawings and marked in the field during Project construction.
- Forest Service standard S-2 would be amended to allow soil disturbance within the protective strip provided:
  - Compliance with all other applicable standards for soil, water and riparian area protection and restoration is assured;
  - No wetland to which this modified standard would apply to is directly impacted; and
  - Adequate design criteria are proposed that will assure protection of the remaining protective strip and thus further assure that the integrity of the wetland can be maintained.

### 3.9 Ecological Resources

- Measures to control the spread of non-native invasive species (NNIS) would include:
  - Before entering the Project site, all construction equipment would be cleaned of dirt and debris that may contain NNIS seeds or propagules. The standard equipment cleaning clause would be followed (section BT6.35 of a standard timber sale contract).
  - Information regarding common reed and reed canary grass infestations and control measures would be shared with the Town of Searsburg and Green Mountain Power Corporation.

NOTE: For implementation of many of the activities that may affect ecological resources discussed in Section 3.9 (ecological communities, NNIS, MIS, RFSS, reptiles and amphibians, fish, mammals other than bears and bats, and Threatened, Endangered, and Sensitive species), design criteria described for other resource areas apply, such as geology and soils, cultural and heritage resources, water quality and resources, wetlands, and others may apply.

### 3.10 Avian

- Lighting at the substation and O&M facility would have cutoff luminaries that direct light output toward the ground eliminating light broadcast into the sky that could attract avian species.
- To the extent possible, outdoor lighting would be installed with motion detectors that turn lights on only when necessary.
- Aircraft safety lighting would be at the minimum number and brightness allowed by the FAA. Synchronous, red flashing lights would be mounted on the nacelles of those turbines at the ends and within each the string in accordance with FAA guidelines.
- Current technology, state-of-the-art turbines would be used. These turbines would be mounted on tubular towers (rather than lattice) to minimize perching and nesting on the towers.
- Turbines would be used that have larger-diameter, slower-turning rotor blades which are believed to be more visible to birds, thus reducing bird strikes.
- All electrical lines between the turbines would be buried and any the above-ground segments of the 34.5 kV transmission line will follow Avian Power Line Interaction Committee (APLIC) guidelines for insulation and spacing.
- An avian mortality monitoring program and adaptive management strategy would be developed and implemented in consultation with the Vermont Agency of Natural Resources, Vermont Fish and Wildlife Department, the US Fish and Wildlife Service, the Forest Service., and the Proponent.

### 3.11 Bats

- All of the design criteria for avian species (Section 3.110 above) related to lighting, the benefits of using current technology, state-of-the-art turbines, and burying electrical lines would also be applied for bats.
- A bat mortality monitoring program and adaptive management strategy would be developed and implemented in consultation with the Vermont Agency of Natural Resources, Vermont Fish and Wildlife Department, the US Fish and Wildlife Service, the Forest Service., and the Proponent.

### 3.12 Bears

- Site restoration following construction would include redistributing some cleared logs and stumps within open areas around turbine sites and along access roads. This woody debris would provide habitat for insects, grubs and small vertebrates that would in turn serve as a food source for bears.
- Portions of the cleared areas around the proposed turbines and along the edges of Project access roads would be managed for berry-producing, early successional vegetation, such as blackberries and raspberries to increase foraging opportunities for black bear. This may include planting of native forage species.
- Motorized and non-motorized access on facility roads and ridge top areas adjacent and underneath the turbines would be restricted. Trucks, ATVs, or other motorized vehicles, other

than for administrative purposes, would not be allowed past the gated entrance. A limited area closure to public access would be implemented under and directly adjacent to the turbine strings.

- On-the-ground lighting at the Project site would be limited to emergency lights at the proposed substation. These lights would be situated as needed to assure worker safety, and would be controlled by switches or motion detectors.
- Should the Reduced West alternative be selected, a design criterion would be developed to bury the electrical connection line from the southern-most turbine down to the point where it would connect with the overhead line running down the ridge to Route 8. This buried line would also be placed to avoid beech habitat as much as possible.

### 3.13 Recreation

- To provide for public safety, use of portions of the Project area would be temporarily restricted during construction. A long term closure of access roads and the area under and directly adjacent to the turbine arrays would also be implemented to provide for public safety during site operation.
- Aircraft safety lighting would be at the minimum number and brightness allowed by the FAA in order to minimize visual impacts to recreational users (see Section 3.5 above)..
- To minimize the risk of ATV activity, design criteria would include:
  - Controlling access on facility roads and posting signs informing people that ATV use is not allowed.
  - Providing routine presence of facility maintenance people and law enforcement personnel.
  - Removing illegal trails leading to or from access roads along the ridge. Additional barriers in areas where ATV use is occurring would be erected to prevent further use.
  - Monitoring unauthorized ATV use.
- An improved Public Information Area would be implemented, either by expanding the current area or by constructing a separate facility, to improve safety, preserve vegetation along the roadside, and educate the public about renewable wind energy.

### 3.14 Socioeconomics

- None proposed.

### 3.15 Transportation and Roads

- Primary movements of transport construction material vehicles would be made in off-peak periods when other traffic movements are at a minimum. Deliveries would be coordinated to avoid peak arrival and departure times for areas schools.
- All through and turning movements would be coordinated with State and local safety officials and first responders. In all instances, first responders/emergency vehicles would be given the right of way.
- The timing of movements through developed West Brattleboro (Western Avenue) and congested Wilmington Center would be coordinated to minimize disruption in these areas. Police details would be used to assist in traffic control in these areas and police escort would be provided for

all specialty transport vehicles passing in front of the Marlboro Elementary School on Route 9 (Milepost 8.8) when the elementary school is in session, as necessary.

- Flagmen would be used during peak periods to direct traffic safely in and out of the Putnam Road and Sleepy Hollow Road intersections with Route 8, as necessary.
- Roadway modifications within the Route 9 and/or Route 8 would be designed to State of Vermont highway standards by a Vermont licensed professional engineer.
- All roadway modifications at the intersections would be removed and the areas returned to their prior state following construction, if requested. All intersections would be photo-documented before and after construction of the proposed modifications, and upon their removal, if so requested.
- A Dust Control Plan, as also noted in Section 3.3, would be developed and implemented to minimize impacts of construction dust associated with construction activities.
- An Erosion Prevention and Sediment Control Plan (EPSCP) would be developed to protect soil, water and riparian resources during roadway construction and management. See Section 3.2 above.

### **3.16 Telecommunications**

- Should Project operation impact TV coverage, design criteria may be necessary, This would include adjusting existing receiving antennas, upgrading the antenna, or providing cable or satellite systems to the affected households..

### **3.17 Safety and Security**

- A plan to control public access similar to the plan in place for the existing Searsburg Wind Facility would be developed. It would include, but not be limited to:
  - A forest closure order to gate access roads limiting unauthorized vehicle access.
  - A forest closure order to limit unauthorized public access (foot traffic) along roads and surrounding ridge top areas adjacent and underneath the turbines; exceptions allowed for administrative used and approved public tours.
  - A forest closure order for the other fenced areas around the substations.
  - Restrictions to public access to Project areas during construction (fencing, locked gates, and signs).
- Forest closures would be implemented with the cooperation of law enforcement officials.
- Temporary construction fencing or other visible barriers would be placed around excavations that remain open during off hours.
- A Fire Prevention and Control Plan (FPCP) would be developed.
- Monitoring of ice throw would be done during the first winter, and subsequent winters if needed. Should it be necessary, ice detectors would be installed on any meteorological towers erected on-site, and on selected wind turbines (as necessary) to alert maintenance personnel of icing conditions, and allow for turbine shutdown and/or notification to area residents if so desired.

- The Project's electrical collection lines would be located at least 36 inches below ground, and the interconnection lines would be overhead to prevent incidental contact from stray voltage and to protect insulating materials from sustaining any damage.
- A Site Control and Data Acquisition system would be in place to address system failure. The system would monitor the condition of the facility's equipment, alert service technicians to any fault or alarm conditions, record and sort data, and allow remote control of the turbines. Under such conditions, the turbines would automatically shut down and/or Project maintenance personnel would respond as appropriate.