

**Visual Impact Assessment**  
**BULL HILL WIND PROJECT**  
T16 MD, Maine



**tjd&a**

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## 1.0 EXECUTIVE SUMMARY

### 1.1 Overview

Blue Sky East, LLC is proposing the Bull Hill Wind Project (Project), a 34.2 megawatt (MW) wind power project on Bull Hill and Heifer Hill ridges in T16 MD, Hancock County, Maine. The Project will include 19 Vestas wind turbines, a 34.5 kV collection system, an electrical collection substation, an Operations and Maintenance (O&M) building, and up to three permanent meteorological towers.

Township 16 MD in its entirety is designated as expedited for permitting. The project area is low elevation commercial forest, with a substantial road system that the project will utilize to the extent practicable. Ridge elevations are between 450 and 620 feet above sea level.

The project area is owned by one landowner. The applicant has leased the parcels necessary for the siting of the project, and acquired other property interests as necessary to meet sound and setback standards. Land uses within the study area include forestry, recreation, small-scaled agriculture, and rural residential.

The only existing structures within the lease area are two seasonal camps and two temporary meteorological towers. The camp owners have leases with the underlying landowner, and have agreed to move their camp locations outside of the project area. The existing camps will be removed or abandoned. Both temporary meteorological towers will be removed within one year of turbine construction.

The Bull Hill Wind Project will consist of the following components:

- **Turbine Strings.** A total of 19 turbines, along with associated electrical interconnection infrastructure, will be installed in two distinct strings on relatively low rounded hills. The northern string of 10 turbines will run in a northeast/southwest direction on 1.5 miles of Bull Hill in the northwest corner of Township 16 MD. The southern string of 9 turbines will run in a north/south direction on Heifer Hill and in northeast/southwest direction on Beech Knoll. The length of the southern string is approximately 2.2 miles.
- **Turbines.** The turbines will be Vestas V100 machines, with a 95-meter hub height, a 100-meter rotor diameter, and a maximum tip-of-blade height of 145 meters (476 feet). All components of the turbine will be painted white.
- **Lighting.** Red warning lights will be installed following Federal Aviation Administration (FAA) guidelines, mounted on the top of some of the nacelles and on the permanent meteorological towers. The final lighting plan is determined by FAA approval.
- **Electrical Collection and Transmission.** Power from each turbine will be collected in a 34.5 kilovolt (kV) collection system and flow to a substation. The substation will “step up” the power to 115 kV and transmit it directly to Bangor Hydro Electric’s Line 66. By locating the substation directly adjacent to Line 66, no 115 kV transmission line will be necessary for the project.
- **Operations and Maintenance (O&M) Facility.** An O&M will be centrally located in the project area.
- **Roads.** There is a network of existing haul roads and several gravel pits used for previous road construction. Existing roads will be utilized to the greatest extent possible and on-site gravel pits will not exceed five acres. The applicant will maintain the 24-foot access roads and 36-foot wide

crane path. Roads outside of the project area and therefore under the control of the landowner will continue to be maintained by the landowner.

The Bull Hill Wind Project will be visible from several scenic resources of state or national significance (as defined by the Maine Wind Power Law) within an eight-mile radius, including:

- Narraguagus Lake in T16 MD
- Donnell Pond in T9 SD
- Myrick Lake in T10 SD
- Scenic Viewpoints in the Donnell Pond Unit, Public Reserve Land: including, Black Mountain, Tunk Mountain<sup>1</sup>, and other viewpoints.

Several other scenic resources of state or national significance are present within the eight-mile study area. Throughout most of the study area the undulating and mountainous nature of the intervening topography and the vegetation along the various shorelines will preclude views of the Project from these locations. These additional, non-affected resources include:

- Fox Pond in T10 SD
- Tunk Lake in T10 SD
- Spring River Lake in T10 SD
- Little Long Pond in T10 SD
- Upper Lead Mountain Pond in T28 MD
- Middle Lead Mountain Pond in T28 MD
- Lower Lead Mountain Pond in T28 MD
- Tilden Pond in T10 SD
- Caribou Mountain in T10 SD
- Fiery Mountain in Franklin
- Eastbrook Baptist Church and Town House in Eastbrook (National Register of Historic Places).

A short section of the recently completed Down East Sunrise Trail, which follows the alignment of the former Calais Branch rail corridor, is located in the southern part of the study area. There would be no views of the Project from the trail due to topography and vegetation. The trail is not considered a scenic resource of state or national significance since it is not used exclusively for pedestrian use.

Route 182, connecting the towns of Franklin and Cherryfield, has been designated as the Blackwoods Scenic Byway by the Maine Department of Transportation. While several miles of the byway are located in the southern part of the study area, there are no scenic turnouts that have been constructed by the Maine Department of Transportation with views of the Project. Views of the Project from the roadway are blocked throughout its length by topography and roadside vegetation.

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<sup>1</sup> Tunk Mountain is recognized as a scenic viewpoint in the [Downeast Coastal Scenic Inventory, Hancock and Washington Counties, Maine](#), prepared for the Maine State Planning Office Coastal Program by the Hancock Country Planning Commission and Washington County Council of Governments. February, 2010.

## 1.2 Conclusion

There are several scenic resources of state or national significance within the viewshed of the Bull Hill Wind Project. Within the 8-mile study area the most significant scenic resources that may be affected are the views from Donnell Pond, Narraguagus Lake, and the summit of two of the mountains in the Donnell Pond Unit (i.e., Black Mountain and Tunk Mountain).

The project will not be visible from any national natural landmarks, federally designated wilderness areas, properties on the National Register of Historic Places, National Parks, State Parks, scenic river segments, or MDOT scenic turnouts within the study area. Throughout the majority of the study area, views of the Project are blocked by topography and roadside vegetation.

The VIA applied the criteria in the Maine Wind Power Law to examine each of the scenic resources of state or national significance, in terms of their context, significance, existing public use, viewer expectations, project impact, and the potential effect on public use. This information was used to make a determination of whether the Project would significantly compromise views from these resources such that it would have an unreasonable adverse effect on its scenic character or the existing uses related to its scenic character. While the overall scenic impact on several resources of state or national significance is anticipated to be low to medium, the Bull Hill Wind Project should not have an unreasonable adverse impact on scenic values and existing uses of scenic resources of state or national significance.

## 2.0 INTRODUCTION

### 2.1 Background

Terrence J. DeWan and Associates (TJD&A), landscape architects in Yarmouth, Maine, prepared this visual impact assessment (VIA) for the Bull Hill Wind Project. The methodology for assessing the visual impacts of the wind project involves the judgment of experienced landscape architects in the selection of factors chosen to evaluate scenic quality and determine the magnitude of visual impact. This approach, widely used in permitting work in Maine and elsewhere throughout the country, is based upon current studies of what constitutes scenic landscapes and visual impacts.

The study area is centered on Township 16 MD and includes the abutting towns and unorganized townships within eight miles of the project (see Figure 1: Expedited Windpower Permitting Areas in Vicinity of the Bull Hill Wind Project). The limits of the eight-mile study are based upon the Maine Wind Power Law, which instructs the Land Use Regulation Commission (LURC) to ‘*consider insignificant the effects of portions of the development's generating facilities located more than 8 miles, measured horizontally, from a scenic resource of state or national significance.*’ (§ 3452.3.)

This report is based upon topographic mapping and design plans for the proposed Bull Hill Wind Project provided by Stantec, with input from other professional members of the design team. TJD&A created Viewshed Map E: Topography and Viewshed Map F: Topography and Vegetation with WindPRO software to help determine the limits of potential project visibility.

In addition to field investigations, TJD&A used the three-dimensional resources of Google Earth Pro and WindPRO to look at the study area from the air and on the ground. These digital tools give reviewers the capability to experience the overall physical characteristics of the landscape and thereby better understand the setting of the Project relative to the surrounding topographic features.

## 2.2 Field Investigations

Field data was collected by TJD&A personnel by a variety of means during site visits on October 3, 4, 11, and 12, 2010, and November 10, 2010. Fieldwork concentrated on evaluating and photographing scenic areas of state or national significance within eight miles of the Project (see listing of scenic resources in Section 1.1 above). TJD&A personnel visited the study area by automobile, motorboat, and on foot. Fieldwork was limited to lands that were open to the public; no attempt was made to investigate potential impacts on individual private properties.

Photographs of the project area were taken with a Nikon D300 digital camera, recording at the highest resolution (fine). Two lenses were used throughout the fieldwork, a Nikon 18–200mm lens and a 35mm lens (equivalent to a 50mm ‘normal’ lens in a film camera). When the variable focal length lens was used for photosimulations, it was set to record images equivalent to those taken by a film camera equipped with a 50 mm (i.e., ‘normal’) lens, which is comparable to a non-distorted image seen by the human eye.<sup>2</sup>

GPS coordinates of each photograph were recorded with a JOBO PhotoGPS mounted on the camera’s hot-shoe.<sup>3</sup> An annotated selection of representative views within the study area is included in Appendix B: Study Area Photographs. Photographs were also used in the preparation of the photosimulations used in this VIA, which are provided in Appendix C: Photosimulations.

## 2.3 Viewshed Mapping and Photosimulations

A series of photosimulations (computer-altered photographs) have been prepared to illustrate the anticipated change to the views from scenic resources and other locations resulting from the construction of the Bull Hill Wind Project. The photosimulations are provided in Appendix C: Photosimulations. The following section describes the methodology used to develop these images:

- TJD&A prepared an initial viewshed map of the eight-mile study area with WindPRO<sup>4</sup> software to determine where the turbines, access roads, or transmission line may be visible. Topographic information was obtained from the National Elevation Dataset (NED). Typical viewshed maps are designed to answer the question “Where might someone see a turbine or turbines, if there were no trees, buildings, or other obstacles to block the view?” Using this map, one can determine the relative visibility of the project within the study area. While informative, these maps grossly over represent the visibility of the project because they do not consider vegetation and other obstacles that will block views from roads, hiking trails, population centers, and scenic resources of state or national significance. See Viewshed Map E: Topography.
- A second viewshed map was prepared, using vegetative cover data from the Maine Office of GIS Data Catalog, to show the effect of tree cover on turbine visibility. Conservative estimated heights of vegetation were assigned to the various cover types<sup>5</sup>. This composite map is based on the assumption that the observer would not be able to see turbines a) where the view is blocked by topography, b) while in woodlands within the study area, and c) on waterbodies where the

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<sup>2</sup> The Nikon 18–200mm lens was set to a focal length of 35 mm, based upon manufacturer’s recommendations and field tests conducted by TJD&A.

<sup>3</sup> For more information on the PhotoGPS and its applicability to visual impact assessment, see *Landscape Architecture Magazine*, December 2009. X Marks the Shot, by James L. Sipes, ASLA, featuring work by TJD&A.

<sup>4</sup> WindPRO software was developed for the wind energy industry and is used world-wide for planning, design, and visual representation.

<sup>5</sup> Vegetation heights assumed an average tree height of 40’ in most situations. In certain areas, e.g., where mature evergreens were observed at the margins of ponds, the assigned vegetation height was increased.

view is blocked by trees on forested ridgelines and along the shoreline. See Viewshed Map F: Topography and Vegetation.

- Fieldwork by TJD&A verified the relative accuracy of the viewshed maps and determined the location of characteristic viewpoints to use for photosimulations. The locations were selected to illustrate visual impacts to scenic resources throughout the eight-mile study area, with an emphasis on those areas of greater visual sensitivity and viewer anticipation. The photographs used in the photosimulations and Appendix B: Study Area Photographs were taken from publicly accessible locations to illustrate the wide variety of landscape types within the study area.
- The photographs selected are representative of the views from specific locations. When doing field work, TJD&A typically records images from several locations, based upon tree cover, evidence of public use, and accessibility. The final image selection for the photosimulation was made after evaluating relative project visibility in Google Earth to provide a view where the maximum number of turbines would be seen.
- Photosimulations were prepared by TJD&A using the Visual-Photo Montage WindPRO module. A digital elevation model (DEM) of the Project area was created in WindPRO, using data from National Map, an online data source from USGS ([nationalmap.gov](http://nationalmap.gov)). The specifications of the wind turbines (location, manufacturer, model number, base height, rotor diameter, color) were entered into WindPRO, which created three-dimensional images of the turbines and placed them in the proper location on the model. Digital photographs of the selected view were imported into the computer and merged with the DEM, matching the lens focal length, date and time of photograph, digital resolution, and lighting. The DEM was matched with the photograph using the known elevation, latitude, and longitude data from the PhotoGPS log.
- Post-production editing involved eliminating context data and other adjustments (e.g., removing parts of towers that are blocked by terrain, trees, or buildings). Final adjustments were made in Photoshop to account for time of day, weather conditions, haze, and other environmental factors that can change the appearance and visibility of the turbine components.
- The Project model was also inserted into Google Earth to verify the registration of the photographs with the computer model, to determine the extent that existing vegetation blocks views of the turbines, and to verify the accuracy of the viewshed maps and photosimulations.
- Google Earth was also used to determine the relative visibility of access roads, crane pads, and transmission lines (i.e., where tree removal would be seen from a particular viewpoint). Where these associated facilities were found to be visible, the photosimulation was adjusted in Photoshop to illustrate the anticipated change in the texture and color of the surrounding forestland.
- The resultant photosimulations (presented in Appendix C: Photosimulations) were merged into a panorama using Photoshop to provide a more contextual view of the landscape. Each panoramic view is also accompanied by a 'normal' view (i.e., a single photograph).

The legend in the panoramic views provides the following information:

- **Turbine Model:** Vestas V100, with power rating of 1.8 MW.
- **Hub Height:** 95 meters (312 feet).
- **Rotor Diameter:** 100 meters (328 feet).

- **View Coordinates:** Latitude and Longitude of the photograph and computer model.
- **Viewer Elevation:** Approximate distance above mean sea level, in feet.
- **Direction of View:** The compass direction from the viewpoint (indicated by a red dot and arrows on the USGS Viewpoint Location map).
- **Closest/Furthest Visible Turbine:** The horizontal distance in miles between the viewpoint and the closest and farthest turbines that may be visible from a particular viewing location.
- **Turbines Visible,** The approximate number of turbines that would likely be seen from the specific viewpoint, considering the effects of vegetation and structures.
- **Date/Time:** When the photograph was taken.

The normal view also provides the distance (in inches) that the viewer should hold the photosimulation from the eye to accurately replicate real-world conditions.

### 3.0 REGULATORY REQUIREMENTS

On April 18, 2008 the Governor signed into law LD 2283 An Act to Implement Recommendations of the Governor's Task Force on Wind Power Development. As part of this legislation, the Legislature found that certain aspects of the State's regulatory process for determining the environmental acceptability of wind energy projects should be modified to encourage the siting of projects in Expedited Permitting Areas.

#### 3.1 Modified Visual Impact Standard

Expedited Permitting Areas include most of the organized areas of the State and specific places within LURC's jurisdiction. All of T16 MD, as well as every surrounding town and township, is designated as an Expedited Windpower Permitting Area, making windpower an allowed use in those communities. See Figure 1: Expedited Windpower Permitting Areas in Vicinity of Bull Hill Wind Project on page 9.

Modifications to the permitting process include, but are not limited to:

- A. Making wind energy development an allowed use within certain parts of the State's unorganized and deorganized areas;
- B. Refining certain permitting procedures of the Department of Environmental Protection and the Maine Land Use Regulation Commission; and
- C. Recognizing that wind turbines are potentially a highly visible feature of the landscape that will have an impact on views, judging the effects of wind energy development on scenic character and existing uses related to scenic character should be based on whether the development will have an unreasonable adverse impact on scenic values and existing uses of scenic resources of state or national significance.

#### 3.2 Scenic Resources

"Scenic resources of state or national significance" as defined under State law means:

- A. A national natural landmark, federally designated wilderness area or other comparable outstanding natural and cultural feature, such as the Orono Bog or Meddybemps Heath;
- B. A property listed on the National Register of Historic Places pursuant to the National Historic Preservation Act of 1966, as amended, including, but not limited to, the Rockland Breakwater Light and Fort Knox;
- C. A national or state park;

- D. A great pond that is:
- (1) One of the 66 great ponds located in the State's organized area identified as having outstanding or significant scenic quality in the "Maine's Finest Lakes" study; or
  - (2) One of the 280 great ponds in the State's unorganized or deorganized areas designated as outstanding or significant from a scenic perspective in the "Maine Wildlands Lakes Assessment";
- E. A segment of a scenic river or stream identified as having unique or outstanding scenic attributes listed in Appendix G of the "Maine Rivers Study";
- F. A scenic viewpoint located on state public reserved land or on a trail that is used exclusively for pedestrian use, such as the Appalachian Trail, that the Department of Conservation designates by rule adopted in accordance with section 3457;
- G. A scenic turnout on a scenic highway constructed by the Department of Transportation; or
- H. Scenic viewpoints located in the coastal area that are ranked as having statewide significance or national importance in terms of scenic quality in: (1) One of the scenic inventories prepared for and published by the Executive Department, State Planning Office: "Method for Coastal Scenic Landscape Assessment with Field Results for Kittery to Scarborough and Cape Elizabeth to South Thomaston," Dominic, et al., October 1987; "Scenic Inventory Mainland Sites of Penobscot Bay," DeWan and Associates, et al., August 1990; or "Scenic Inventory: Islesboro, Vinalhaven, North Haven and Associated Offshore Islands," DeWan and Associates, June 1992; or (2) A scenic inventory developed by or prepared for the Executive Department, State Planning Office.

A listing of the scenic resources of state or national significance within the study area is provided in Section 1.1.

### **3.3 Regulatory Standard**

In making findings regarding the effect of an expedited wind energy development on scenic character and existing uses related to scenic character, LURC shall determine whether the development significantly compromises views from a scenic resource of state or national significance such that the development has an unreasonable adverse effect on the scenic values and existing uses related to scenic character of a scenic resource of state or national significance. The Legislature specifically removed the requirement that a wind energy development fit harmoniously into the existing natural environment in terms of potential effects on scenic character and existing uses related to scenic character.

The associated facilities are also reviewed under the modified scenic impact standard applicable to the wind generating facilities unless LURC determines that the associated facilities (i.e., access roads and transmission line) have unreasonable adverse effects on scenic character and existing uses. If LURC makes that determination, the associated facilities may be evaluated under traditional standards found in 06-096 CMR 375(14) and 06-096 CMR 315.

## 4.0 PROJECT DESCRIPTION

The following section describes the visible components of the Bull Hill Wind Project and its associated facilities.<sup>6</sup>

### 4.1 Wind Turbines

A total of 19 turbines will be installed in two distinct strings. The northern group of 10 turbines will run in a northeast/southwest direction on 1.5 miles of Bull Hill in the northwest corner of Township 16 MD. The southern group of 9 turbines will run in a north/south direction on Heifer Hill and in northeast/southwest direction on Beech Knoll. The length of the southern string is approximately 2.2 miles.

The turbines will be Vestas V100-1.8 MW machines, with a 95-meter hub height (317 feet), a 100-meter rotor diameter (328 feet), and a maximum tip-of-blade height of 145 meters (476 feet). All components of the turbine will be painted white. Turbines will be located at elevations between 388 and 620 feet above sea level.

By using a constant base height, each of the nacelles will be roughly parallel to the ridgeline, creating a sense of order throughout the project. The turbines are controlled electronically so they always face into the wind when operating. All components of the turbine will be painted white.

The blades will spin very slowly in low wind and will begin producing power when the wind velocity reaches approximately 3 m/s (6.7 mph). After the wind reaches a certain maximum velocity (generally 20 m/s or 60 mph, but will vary with the intensity of turbulence) the machines will cut out. The turbines may not be operational at other times, such as when the turbines are taken out of service for repair.

Depending upon the wind velocity, the blades will rotate at 9.3 to 16.6 revolutions per minute (RPM), which is equivalent to one revolution every 6.5 to 3.6 seconds. With unobstructed viewing conditions individual blades will be clearly visible with virtually no detectable blurring while they rotate.

Wind turbines are generally spaced a minimum of two rotor diameters apart (200 meters/656 feet). The turbines for the Bull Hill Project will be spaced between 850 feet and 1,800 feet apart. Turbine spacing is a function of meteorological considerations related to wind speed and direction, interference from adjacent turbines, and other technical factors. The siting of individual turbines has taken into account the wind resource, site-specific topography, access road locations, proximity to wetlands, wildlife habitat, and other site conditions.

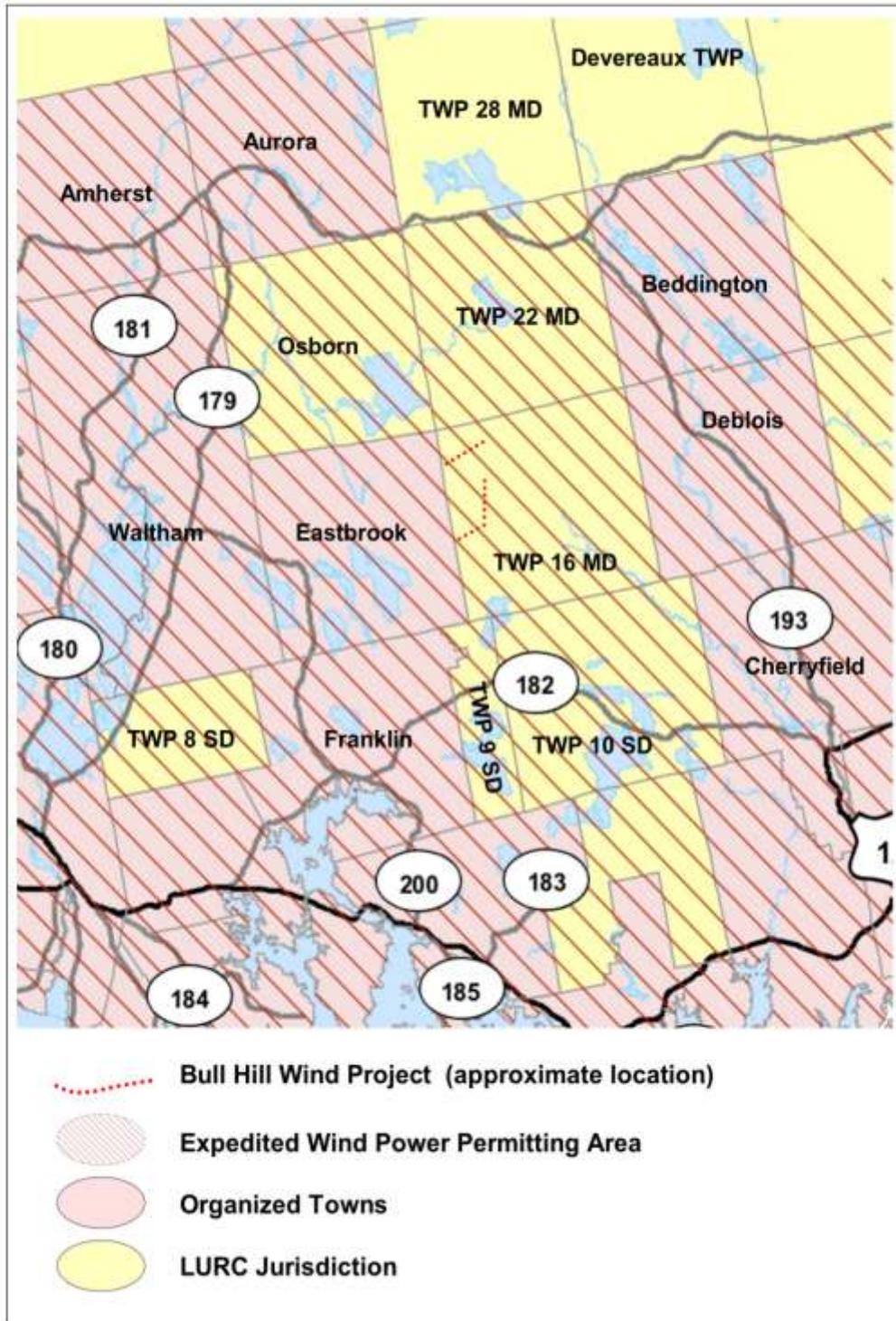
The turbine components (base, nacelle, and blades) will be white to provide contrast for pilots. White turbines will allow the project to only have red nighttime lighting. If an alternate color were used, the FAA would likely recommend white strobes for daytime lighting, which would make the Project considerably more noticeable.

Turbine contrast and visibility is a highly variable phenomenon; turbines can appear to change from dark gray to a shade that almost matches the background sky, depending upon the time of day, orientation of the viewer, atmospheric conditions, and weather. In the midground and background viewing distances

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<sup>6</sup> The Maine Wind Power Law defines 'associated facilities' as those 'elements of a wind energy development other than its generating facilities that are necessary to the proper operation and maintenance of the wind energy development, including but not limited to buildings, access roads, generator lead lines and substations'.

Figure 1: Expedited Windpower Permitting Areas in Vicinity of the Bull Hill Wind Project



(greater than five miles) where the Project will typically be seen, the turbines will appear as light gray due to the effects of atmospheric perspective, especially on hazy or overcast days.

#### 4.2 Project Lighting

Lighting for the project will follow the Federal Aviation Administration (FAA) recommendations for aviation safety. Red lights will be mounted on the top of some of the nacelles in accordance with an FAA approved lighting design. Under normal operations, the lights will be synchronous, red, flashing, with a slow-on, slow-off profile. The permanent meteorological towers will also have FAA approved lighting. By using white turbines, which offer a considerable amount of visual contrast for pilots, the FAA will not require daytime lighting. Turbine warning lights are designed to be brightest when viewed from above or at the same horizontal plane to make them most apparent to pilots. Because nighttime lighting is required by FAA regulation to concentrate emitted light to a beam that is  $3\pm$  degrees of horizontal, the intensity of the light diminishes below the horizon, which minimizes impacts on surrounding land uses.

#### 4.3 Access Roads

There is a network of existing haul roads on the property off the Molasses Pond Road that will be utilized to the greatest extent possible. In addition, there are several on-site gravel pits that were used for previous road construction and will be available for the Project. Figure 2: (taken from Google Earth) illustrates existing conditions in the immediate area surrounding the turbines. As seen in this view, the landscape is currently being used for commercial timber production with many associated haul roads. The existing Line 66 transmission line is also clearly visible between the strings.

Each wind turbine will be linked by a 36 foot $\pm$  wide gravel road designed to provide safe access for the construction crane to reach the turbine site throughout the installation process. In some instances the

**Figure 2: Aerial View of Bull Hill Wind Project, from Google Earth.**



topography will dictate a circuitous route to accommodate the engineering requirements of the installation equipment and minimize site disturbance. In most locations the access roads will be screened by existing vegetation and will not be highly visible from outside the immediate area.

#### **4.4 Electrical Collection System**

Power from each turbine will be collected in an underground 34.5 kilovolt (kV) collection system and flow to a substation. The substation will “step up” the power to 115 kV and transmit it directly to Bangor Hydro Electric’s existing Line 66, which runs in the broad valley between Bull Hill and Heifer Hill. By locating the substation directly adjacent to Line 66, a new 115 kV transmission line will not be necessary for the Project.

#### **4.5 Meteorological Towers**

The two existing meteorological towers are temporary and will be removed within one year of turbine construction. Up to three 95 meter (312 feet) temporary towers will be installed during construction, and up to three permanent 95 meter towers will be installed on the site and remain for the life of the project. These towers will be lighted according to FAA requirements. The towers are expected to be of a guyed lattice construction with a triangular cross section approximately 18 inches across. Their slim profile and light color will greatly reduce their visibility at distances greater than one mile.

#### **4.6 Crane Pads and Crane Assembly Area**

A cleared and level pad area averaging one acre in size will be required at the base of each turbine for staging, crane movement, and turbine installation. Additional clearing may be needed in some areas to account for cut/fill slopes. Following construction the majority of crane assembly and turbine pad areas will be allowed to naturally revegetate.

#### **4.7 Operations and Maintenance Facility**

An operations and maintenance (O&M) facility will be constructed on the property between Bull Hill and Heifer Hill. The O&M facility will consist of a single-story building that will contain a warehouse and office and a small parking area. The building will be served by on-site water and septic. It will have a dark roof and be painted a neutral color to minimize contrast in color. It will not be visible from outside the immediate area or from any scenic resources of state or national significance.

#### **4.8 Visual Impact of Associated Facilities**

The associated facilities for Bull Hill Wind Project include the access roads, the electrical collector line, and the collector substation. None of these associated facilities will be visible from any scenic resource of state or national significance. The associated facilities will not be of a location, character, or size to cause an unreasonable adverse visual affect on the scenic character of the study area.

### **5.0 PROJECT STUDY AREA**

#### **5.1 Existing Character of the Surrounding Area**

The Project study area is defined by all surrounding land areas within eight miles of the proposed turbines. The existing character of the study area is described by its landforms, water resources, vegetative patterns, and cultural character. The study area includes all of TWP 16MD and Eastbrook, and

portions of TWP 22 MD, Beddington, Deblois, Cherryfield, TWP 10SD, TWP SD, Franklin, TWP 8SD, Waltham, Mariaville, Osborn, Aurora, and TWP 28MD. See Study Area Map A; Study Area Map B, Northwest: Study Area Map C, Southwest: and Study Area Map D, Southeast.

Only a relatively small portion of the land within the study area will have views of the Project. The potential viewshed within eight miles of the Project is illustrated on Viewshed Map E: Topography and Viewshed Map F: Topography and Vegetation.

- *Landform.* The study area is divided into two distinct physiographic areas. The southern portion is located in the Eastern Coastal biophysical region, which extends approximately 20 miles inland from the coast. This region is characterized by relatively low ridges surrounded by flat, poorly drained terrain. In general, elevations are typically less than 100 feet above sea level, with the exception of the mountains of Mount Desert Island and the Schoodic / Black / Tunk Mountain area, where elevations rise to over 1,000 feet.

The mountains of this area, primarily in the Donnell Pond Unit, are distinctive landmarks in the area north of Mount Desert Island. These include:

<b>Mountain</b>	<b>Elevation</b>
Schoodic	1060
Black (west peak)	1,049
Black (east peak)	1,094
Caribou	960
Tunk <sup>7*</sup>	1,140
Catherine*	962
Round	592
Fiery	553

The northern portion of the study area is in the Eastern Interior biophysical region, which parallels the Eastern Coastal Region and extends in a band 20-25 miles inland. This area contains the main stems and tributaries of the Narraguagus, Pleasant, and Machias Rivers. The topography is generally rolling, with elevations averaging 200 to 400 feet. Higher hills, such as Lead Mountain, are scattered throughout.<sup>8</sup>

The Project will be built on two relatively low ridgelines (Bull Hill and Heifer Hill), with elevations between 450 and 620 feet above sea level. Neither landform has a particularly distinct profile, and both are very difficult to distinguish when seen in the background (greater than 3-5 miles).

- *Water Resources*

Lakes and Ponds. The land between Black Mountain on the south and Lead Mountain on the north is recognized for its abundance of water features, with 29 lakes and ponds within the 8-mile

<sup>7</sup> \* Catherine Mountain and the summit of Tunk Mountain are on private property and are not part of the Donnell Pond Unit. Downeast Region Management Plan, Maine Department of Conservation, Bureau of Parks and Lands, Augusta, Maine. March 2007.

<sup>8</sup> Bailey, R.G. *Description of the Ecoregions of the United States*. Miscellaneous Publication No. 1391, U.S. Department of Agriculture, Forest Service, Washington, DC. 1995.

study area. Ten of these are considered scenic resources of state or national significance (highlighted in **bold**, below). These include: **Narraguagus Lake**, Molasses Pond, Scammon Pond, Spectacle Pond, Rocky Pond, **Upper Lead Mountain Pond**, **Middle Lead Mountain Pond**, **Lower Lead Mountain Pond**, Beddington Lake, **Myrick Lake**, **Fox Pond**, **Little Long Pond**, **Tilden Pond**, **Spring River Lake**, Mud Pond, Salmon Pond, Rainbow Pond, **Tunk Lake**, Shillaloh Pond, Wizard Pond, **Donnell Pond**, Duck Pond, Little Pond, Georges Pond, Great Pond, Abrams Pond, Webb Pond, Little Webb Pond, and Graham Lake. The Project will be visible from three of the -ten significant lakes and ponds (Narraguagus Lake, Myrick Lake and Donnell Pond). Narraguagus Lake is the only significant waterbody within three miles with a view of the Project.

Rivers and Streams. One of the largest drainage systems flows east from the Project site into the West Branch of the Union River, which ultimately flows southeast through Cherryfield, where it joins with the main stem of the Narraguagus River, and on into Milbridge, where it discharges into Narraguagus Bay. The main stem of the Narraguagus River has its headwaters in an extensive series of peat bogs east of the Project (Denbow Heath).<sup>9</sup>

Most of the lakes in the study area are interconnected by rocky streams: e.g., Tunk Stream flows from Tunk Lake into Spring River Lake; the Union River drains an area that includes the three Lead Mountain Ponds, Rocky Pond, Spectacle Pond, and Graham Lake before flowing into Union River Bay in Trenton.

- *Vegetative patterns*. The predominant forest cover in the study area is mixed second growth softwood/hardwoods. The majority of the land in the study area is either privately owned or part of the Donnell Pond Unit of the Maine Public Reserve Land. Much of the study area is actively being used for timber production. Approximately one-third of the Donnell Pond Unit is suitable and available for timber management, with certain restrictions (e.g., recreation resources, visual considerations)<sup>10</sup>.
- *Cultural character*. The study area is notable for the relative scarcity of cultural features within eight miles of the project:
  - **Population Centers**: Eastbrook (population 370,) is the only population center within the study area. The community is composed of many neighborhoods, with the majority concentrated on the shores of Molasses Pond. The only structure on the National Register of Historic Places, the Eastbrook Baptist Church and Town House, is located at the junction of Route 200 and the Molasses Pond Road 5 miles west of the Project, and will not have a view of the Project. The Project will be visible from many locations within the community, especially on the western and southern shores of Molasses Pond, where the closest turbines will be 3± miles to the east.
  - **Lakeside cottages** are found in dense clusters on significant portions of the shoreline on Molasses Pond, Webb Lake, Spectacle Pond, Georges Pond, Abrams Pond, and Upper Lead Mountain Pond. Turbines will be visible from several of these areas, as indicated on the Viewshed Maps and described in Appendix B, Study Area Photographs.

<sup>9</sup> Both the Union River and the Narraguagus River have segments which have unique or outstanding scenic attributes; however, these segments do not occur within the Study Area. Maine Rivers Study, Appendix G. Maine Department of Conservation. 1982.

<sup>10</sup> Downeast Region Management Plan, Maine Department of Conservation, Bureau of Parks and Lands, Augusta, Maine. March 2007.

- Small clusters of cottages in concentrated areas are found on Lower and Middle Lead Mountain Ponds, Donnell Pond, Spring River Lake, and Tunk Lake. Many of the smaller ponds are either undeveloped or have very few cottages; these include Fox Pond, Tilden Pond, Little Long Lake Pond, Narraguagus Lake, and Myrick Lake. With few exceptions, turbines will not be visible from the cottages on these lakes.
- **Very low density rural residential development**, found throughout the study area.
  - **Recreational areas and facilities** include the Donnell Pond Unit of the Maine Public Reserve Land, which features boat launches, camping areas, beaches, picnic areas, and hiking trails (see description below); a public beach on Molasses Pond; public boat launches on most of the larger waterbodies, including Donnell Pond, Fox Pond, Tunk Lake, Long Pond, Georges Pond, Molasses Pond, Scammon Pond, Webb Pond, Spectacle Pond, Rocky Pond, Lower Lead Mountain Lake, and Upper Lead Mountain Lake. The Lyle Frost Wildlife Management Area (1,160 acres managed by Maine Department of Inland Fisheries and Wildlife) on Scammon Pond in Eastbrook offers fishing, canoeing, hunting, hiking, and wildlife observation. The areas within the Donnell Pond Unit are the only scenic resources of state or national significance that will have views of the Project. There will also be views from the recreational facilities at the northwest end of Molasses Pond.
  - **Scenic Byways**: Route 182, connecting the towns of Franklin and Cherryfield, has been designated as the Blackwoods Scenic Byway by the Maine Department of Transportation. This winding road provides visitors with views of forests, ponds, mountains, and blueberry barrens and also provides access to the Donnell Pond Unit of the Maine Public Reserve Land. While several miles of the byway are located in the southern part of the study area, there are no scenic turnouts that have been constructed by the Maine Department of Transportation with views of the Project. Views of the Project from the roadway are blocked throughout its length by topography and roadside vegetation.
  - **Multi-use trail**: A short section of the recently completed 87-mile Down East Sunrise Trail, which follows the alignment of the former Calais Branch rail corridor, is located in the southern part of the study area. One of the most scenic parts of this multi-use trail is the section through Schoodic Bog, which is south of Schoodic Mountain and outside the study area. There would be no views of the Project from the trail due to topography and vegetation.
  - **Designated snowmobile trails**: According to Maine Snowmobile Trails, the only portion of the Interconnected Trail System (ITS) in or near the study area is ITS 81, which parallels the Narraguagus River between Beddington and Cherryfield<sup>11</sup>. Most of this segment is at least 8 miles from the Project. Turbines are not expected to be visible from any portion of the ITS.

Photographs of these cultural resources are provided in Appendix B: Study Area Photographs.

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<sup>11</sup> Maine Snowmobile Trails, 2009-2010 Map of the Interconnected Trail System. Maine Snowmobile Association and Maine Department of Conservation. Augusta, Maine.

## 5.2 Distance Zones

The concept of distance zones is based upon the USDA Forest Service visual analysis criteria for forested landscapes and on the amount of detail that an observer can differentiate at varying distances.<sup>12</sup> Given the size of the wind turbines in Maine, the distance zones that have been established to evaluate scenic impacts for more common development projects may have different significance for wind power projects. Nonetheless, the evaluation of foreground, midground, and background provides a useful framework for evaluating the presence of wind turbines and their related facilities in the larger landscape. The distance zones used for the Bull Hill Wind Project are defined as:

- **Foreground:** 0 to 1/2 mile from the observer. Within the foreground, observers are able to detect surface textures, details, and a full spectrum of color. For example, the details of the turbines (blades, nacelles, support towers) will be readily apparent. There are no scenic resources of state or national significance within one-half mile of the Project.
- **Midground:** 1/2 mile to 3-5 miles from the observer. The midground is a critical part of the natural landscape. The Maine Wind Power Law presumes that a visual impact assessment will be required to evaluate potential scenic impacts to scenic resources within three miles. Within this zone the details found in the landscape become subordinate to the whole: individual trees lose their identities and become forests; buildings are seen as simple geometric forms; roads and rivers become lines. Edges define patterns on the ground and hillsides. Development patterns are readily apparent, especially where there is noticeable contrast in scale, form, texture, or line. Colors of structures become somewhat muted and the details become subordinate to the whole. This effect is intensified in hazy weather conditions, which tend to mute colors and de-sharpen outlines even further. In panoramic views, the midground landscape is the most important element in determining visual impact. Narraguagus Lake is the only scenic resource of state or national significance that will have a midground view of the Project.
- **Background:** greater than 3–5 miles<sup>13</sup>. Background distances provide the setting for panoramic views that give the observer the greatest sense of the larger landscape. However, the effects of distance and atmospheric haze will obliterate the surface textures, detailing, and form of project components. Objects in the background will be highly visible only if they present a noticeable contrast in form or line, and when weather and lighting conditions are favorable. Most structures in typical development proposals cease to be uniquely recognizable at distances greater than 3–5 miles. However, since wind turbines are very large and relatively simple objects, their form and color remain readily distinguishable within the midground and well beyond into the background (up to eight miles from the observer). Due to the thinness of the design, the outer ends of the turbine blades will be minimally visible in the outer portion of the background. When elements of the project are visible from scenic resources of state or national significance, they mostly appear in the background.

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<sup>12</sup> Landscape Aesthetics: A Handbook for Scenery Management. USDA Forest Service. Agricultural Handbook Number 701. December 1995.

<sup>13</sup> For purposes of this visual impact assessment, the background viewing distance is limited to eight miles, since the legislature has determined that “the primary siting authority (LURC) shall consider insignificant the effects of portions of the development’s generating facilities located more than 8 miles, measured horizontally, from a scenic resource of state or national significance.” (§ 3452.3.)

## 6.0 VISUAL IMPACTS ON SCENIC RESOURCES OF STATE OR NATIONAL SIGNIFICANCE

As noted in Section 5, there are several scenic resources of state or national significance within eight miles of the Project. The following section evaluates each of these resources, using the criteria in the Maine Wind Power Law:

- **Context.** *The existing character of the surrounding area and the context of the proposed activity.* (§ 3452.3.B and 3452.3.D).
- **Significance.** *The significance of the potentially affected scenic resource of state or national significance* (§ 3452.3.A).
- **Public Uses.** *The extent, nature and duration of potentially affected public uses of the scenic resource of state or national significance.* (§ 3452.3.E).
- **Viewer Expectations.** *The expectations of the typical viewer who would be using or enjoying the scenic resource of state or national significance.* (§ 3452.3.C).
- **Project Impact.** *The scope and scale of the potential effect of views of the Project on the scenic resource of state or national significance, including but not limited to issues related to the number and extent of turbines visible from the scenic resource of state or national significance, the distance from the scenic resource of state or national significance, and the effect of prominent features of the development on the landscape.* (§ 3452.3.F).
- **Potential Effect on Public Use.** *The potential effect of the generating facilities' presence on the public's continued use and enjoyment of the scenic resource of state or national significance.* (§ 3452.3.E).
- **Conclusion.** *A determination of whether the development significantly compromises views from a scenic resource of state or national significance such that the development has an unreasonable adverse effect on the scenic character or existing uses related to scenic character of the scenic resource of state or national significance.* (§ 3452.1).

The assessment of potential visual impact on scenic resources of state or national significance is based upon knowledge of the project site, viewshed analysis, photosimulations, and a recreational user survey.

In order to gain a better understanding of public use of the Donnell Pond Unit and public reaction to the proposed Project, Market Decisions, a market research and survey firm in Portland, Maine, was engaged to develop and conduct a survey of recreational users and to evaluate the results. Market Decisions interviewed 81 people during the three-day Columbus Day weekend 2010 (October 9, 10, 11), and administered a relatively short (27-question) survey. During this period these people were intercepted in two locations (the Schoodic Beach parking area and on top of Black Mountain). The survey results were used to assist in an analysis of user expectations and impacts. The survey and results are appended to this report as Appendix D.

### **6A. A national natural landmark, federally designated wilderness area or other comparable outstanding natural and cultural feature, such as the Orono Bog or Meddybemps Heath.**

There are no national natural landmarks, federally designated wilderness areas, or other comparable outstanding natural and cultural features (other than those in the Donnell Pond Unit, discussed below) within the study area.

### **6B. A property listed on the National Register of Historic Places pursuant to the National Historic Preservation Act of 1966, as amended, including, but not limited to, the Rockland Breakwater Light and Fort Knox.**

There is one property on the National Register of Historic Places within eight miles of the Project area, i.e., the Eastbrook Baptist Church and Town House in Eastbrook (5.0 miles west of the Project). Views of all but five of the turbines will be blocked by the rolling topography to the northeast. The remaining turbines will be screened by intervening vegetation occurring between the church and the Project, a distance of over five miles. See photographs of each site in Appendix B.

#### **6C. National or State Parks**

There are no state parks within eight miles of the project; the closest is Lamoine State Park, 17.5 miles to the southwest and the 491-acre undeveloped Pleasant River Lake parcel in Beddington (11.8 miles to the east. The Donnell Pond Unit (a Maine Public Reserved Land) is administered by the Bureau of Parks and Lands and is described in 6F below.

The closest unit of the National Park Service is Acadia National Park, which is 20± miles to the southwest (Mount Desert Island) and 22± miles to the southeast (Schoodic Point). The Appalachian National Scenic Trail is over 73 miles northeast of the Bull Hill Wind Project at its closest point.

#### **6D. A great pond that is:**

- (1) One of the 66 great ponds located in the State's organized area identified as having outstanding or significant scenic quality in the "Maine's Finest Lakes" study; or**
- (2) One of the 280 great ponds in the State's unorganized or deorganized areas designated as outstanding or significant from a scenic perspective in the "Maine Wildlands Lakes Assessment."**

Table 1 lists the 10 lakes and ponds within the study area that have been rated to have significant or outstanding scenic resources, as determined by the Maine Wildlands Lakes Assessment. The Viewshed Analysis Map F (considering the screening effects of vegetation) indicates that three of these waterbodies will have views of the turbines and are further described on the following pages. The remaining seven lakes and ponds are screened within the 8-mile limit by a combination of topography and vegetation that will block views of the turbines from the surface of the water.

**Table 1. Significant or Outstanding Lakes and Ponds within 8 miles of the Bull Hill Wind Project**

WATERBODY / LOCATION	SIZE (acres)	DIST (miles)	TURBINES VISIBLE	% OF POND	SCENIC RATING	OVERALL RATING
Narraguagus Lake, T16 MD	426	2.0	Up to 19	55%	S	1B
Upper Lead Mtn. Pond, T28	1021	7.0	0	NONE	S	2
Middle Lead Mtn. Pond, T28	486	7.9	0	NONE	S	2
Lower Lead Mtn. Pond, T28		7.6	0	NONE		
Little Long Pond, T10 SD	55	5.4	0	NONE	O	1B
Myrick Lake, T10 SD	45	4.6	Blades of 6±	12%	S	2
Spring River Lake, T10 SD	704	5.9	0	NONE	O	1A
Tilden Pond, T10 SD	36	5.8	0	NONE	+	2
Tunk Lake, T10 SD	2010	7.3	0	NONE	O	1A
Donnell Pond, T9 SD	1120	5.3	Up to 12	19%	O	1A
Fox Pond, T10 SD	77	5.1	0	NONE	O	1A

SIZE: Area of waterbody in acres  
 DIST: Distance to the nearest turbine.  
 # VISIBLE: The approximate number of turbines within eight miles that may be visible from the lake/pond.  
 % OF POND: The portion of the waterbody where any portion of a turbine may be visible.  
 SCENIC RATING: S: Significant O: Outstanding +: Needs field checking due to positive public comment.  
 OVERALL RATING:  
 1A: Lakes with multiple outstanding values or 1 outstanding and 4 or more significant values.  
 1B: Lakes with a single outstanding natural value.  
 2: Lakes with no outstanding values but at least one significant resource value.  
 3: Lakes with no known outstanding or significant values

## NARRAGUAGUS LAKE

**Context.** Narraguagus Lake (426 acres, elevation 224), 2.0 miles southeast of the Project, is the closest scenic resource of state or national significance to the turbines. The lake is located in three unorganized townships: T16 MD, T10 SD, and T9 SD. Heifer Hill and Bull Hill are typical of the low hills that partially surround the lake, create an undulating sense of enclosure throughout much of its length. The most distinctive landform visible from the lake is the partially bald face of Tunk Mountain (el. 1157), 2.3 miles to the southeast. See photographs in Appendix B.

While the majority of the shoreline is undeveloped, there are half a dozen cottages on the northwestern corner and western shoreline, accessed from a logging road on the west side of the lake.

Most of the area surrounding Narraguagus Lake is either private timberland or held by The Nature Conservancy. Ongoing commercial logging operations have created a network of roads within 0.5 miles of the waterfront on the west, south, and east sides.

**Significance.** The Maine Wildlands Lakes Assessment notes that the lake is accessible and undeveloped and received a resource rating of ‘significant’ for its scenic resources. The Assessment assigned Narraguagus Lake to Resource Class 1B.

Prior to the publication of the Maine Wildlands Lakes Assessment, the State Planning Office issued the Scenic Lakes Character Evaluation in Maine's Unorganized Towns, which evaluated the scenic characteristics of all 1,509 lakes and ponds (with a surface area greater than 10 acres) in LURC territory. The Evaluation was based on six criteria: relief, physical features, shoreline configuration, vegetation diversity, special features, and inharmonious development. A point system was developed to assign a rating to each of the criteria, depending upon their presence in the landscape. The following table provides a short description of each of the criteria and summarizes the findings for Narraguagus Lake<sup>14</sup>:

**Table 2: Visual Characteristics of Narraguagus Lake**

FACTOR	DEFINITION	RATING	MAX. PTS.	SCORE
Relief	Complexity of relief Dramatic relief	None	30	0
Physical Features	Cliffs, vertical ledges, slab ledges, rockslides, boulders, islands, beaches.	Medium	25	15
Shoreline Configuration	Relative complexity of the shoreline.	Low	15	5
Vegetation Diversity	Four possible types were identified: mixed hardwood/softwoods; softwoods; marsh; super-story trees.	Medium	15	10
Special Features	Water clarity Opportunities for wildlife viewing	None	15	0
Inharmonious Development	Residential development, visible roads, powerlines, etc.	Low/None	-20	0
<b>TOTAL</b>				<b>30</b>

A total of 118 lakes with a total of 50 or more points were identified as 'Outstanding' in the Evaluation. There were 162 lakes, including Narraguagus Lake, that achieved a score between 20 to 45 points and were identified as 'distinctive', which was the basis for the 'Significant' category.

LURC's Comprehensive Land Use Plan includes Narraguagus Lake in Management Class 7, which consists of all lakes not classified into the other six management classes, including many lakes that have multiple outstanding or significant resource values identified in the Wildlands Lake Assessment. LURC's management objectives for lakes in Class 7 call for multiple uses, including resource conservation, recreation, and timber production, giving specific consideration to identified resource values when evaluating the merits of lake-related rezoning and permit applications. It is the Commission's intention that the majority of these lakes remain in Management Class 7 and be managed under applicable requirements.<sup>15</sup>

Maine Department of Inland Fisheries and Wildlife surveyed the lake in 2001 and issued the following report:

*Narraguagus Lake is a relatively shallow, boulder-strewn lake located in a fairly remote area of Hancock County. Access is via an extremely rough and rocky 4-wheel-drive road which heads north*

<sup>14</sup> Maine State Planning Office. Scenic Lakes Character Evaluation in Maine's Unorganized Towns. December, 1986. The ratings in the chart – from None to High – are taken from the SPO document.

<sup>15</sup> Maine Land Use Regulation Commission. 2010 Comprehensive Land Use Plan. Appendix C – Lake Management Program. 2010.

*off Route 182. Although there is no well-defined landing, a few areas exist where a small boat/canoe can be carried down to the lakeshore.*

*This water supports a population of wild brook trout, some of which reach lengths of 16-17 inches. Most anglers like to fish the pond within 2 weeks after ice-out, before the fallfish become active. Most angler trips produce little or nothing, but when fortunate anglers “hit it right”, they are well rewarded for their efforts. Despite low angler use and highly restrictive harvest regulations designed to maximize natural reproduction, fishing quality has declined over the years. The trout must cope with severe competition exerted by the abundant hornpout, fallfish, sucker, and sunfish populations. This factor limits the lake’s trout productivity.*

*The outlet, Spring River, is a major tributary to the West Branch of the Narraguagus River. Spring River provides some fine trout fishing in the spring. It’s likely that some of the trout that are hatched in several tributaries of Spring River, rather than moving down Spring River, move up into Narraguagus Lake.*

*Despite the decline in the wild trout fishery, this water should never be stocked. Wild trout are much hardier than their hatchery-reared counterparts when it comes to coping with strong competition. Because of the fragile status of the fishery, the lake should remain closed to ice fishing.<sup>16</sup>*

**Public Uses.** Public recreational use of the lake is expected to be very light, due to the lack of public access and the rough condition of the nearby roads. Those who do use the lake enjoy boating, fishing, swimming, and seasonal camps. The lake is closed to ice fishing. Boat access to the lake is limited to informal hand-carry put-ins.

**Seasonal Camps** are located in a cove at the northwestern corner and the mid-section of the lake. A 1,700-acre tract of land, including 3 miles of shoreline on the lower portion of Narraguagus Lake and extending south to Route 182, is currently on the market.

**Viewer Expectations.** People who use Narraguagus Lake are expected to have moderate to high expectations of scenic quality, since the majority of the lakefront is undeveloped. The expectation may be tempered by the occasional sounds of heavy logging equipment on the land surrounding the lake.

**Visual Impact.** The viewshed maps indicates most of the 19 turbines will be seen in the north northwest over the majority of the lake, at distances ranging from 2 to 6 miles, over a horizontal arc of 17° to 25°. This represents approximately 7% of the 360-degree view that a person would see from a midpoint on the lake. Photosimulation 1 illustrates the visual impact of the Project on Narraguagus Lake. The photosimulation is based on a photograph taken from a point near the southeastern end of the lake, where 19 turbines will be visible on the horizon. The turbines will not be visible from the camps on the northwestern shore of the lake. The red warning lights on the turbines will be visible above the horizon from much of the lake during the evening and nighttime hours, with the exception of the populated cove at the northwestern end. The presence of the turbines will not have an effect on the lake’s physical features or its vegetation diversity, characteristics that gave it the majority of the points in the Scenic Lakes Character Evaluation (summarized in Table 2).

**Potential Effect on Public Use.** The primary impact will be on the relatively low number of people who fish or boat on the lake. The presence of the turbines will have an effect on the character of Narraguagus Lake by introducing man-made elements in a portion of the view within a largely natural

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<sup>16</sup> Maine Department of Inland Fisheries and Wildlife. Narraguagus Lake, T16MD, T10SD, T9SD, Hancock Co. Surveyed August, 1962, Revised 1980, 2001.

landscape. The turbines will not block views of the surrounding low hills, nor will they be seen in conjunction with Tunk Mountain to the southeast.

**Conclusion.** The Project will occupy a prominent position above the northwestern shoreline of the lake. However, the turbines will not block the southerly view toward Tunk Mountain, which is the focal point of the lake. The Bull Hill Wind Project should not significantly compromise views from Narraguagus Lake. The Project should not have an unreasonable adverse effect on its scenic character or the recreational uses related to the scenic character of the lake.

## MYRICK LAKE<sup>17</sup>

**Context.** Myrick Lake (45 acres, elevation 236) is a remote waterbody 4.6 miles southeast of the Project. The pond is located in commercial forestland, 4.5 miles from Route 182 on the Myrick Pond Road. The pond is just north of the border of the Donnell Unit Maine Public Reserve Lands. The northern part of the pond has southerly views to Tunk Mountain (el. 1,157) and several other nearby prominent hills. A few seasonal camps are located on the pond, but are very well screened and/or set back from the edge of the water.

**Significance.** The Maine Wildlands Lakes Assessment notes that the lake is inaccessible and developed and received a resource rating of ‘significant’ for its scenic resources. It was not rated for any other resource values. The Assessment assigned Myrick Lake to Resource Class 2.

Prior to the publication of the Maine Wildlands Lakes Assessment, the State Planning Office issued the Scenic Lakes Character Evaluation in Maine’s Unorganized Towns, which evaluated the scenic characteristics of all 1,509 lakes and ponds (with a surface area greater than 10 acres) in LURC territory. The Evaluation was based on six criteria: relief, physical features, shoreline configuration, vegetation diversity, special features, and inharmonious development. A point system was developed to assign a rating to each of the criteria, depending upon their presence in the landscape. The table on the following page provides a short description of each of the criteria and summarizes the findings for Myrick Lake.<sup>18</sup>

A total of 118 lakes with a total of 50 or more points were identified as ‘Outstanding’ in the Evaluation. There were 162 lakes, including Myrick Lake, that achieved a score between 20 to 45 points and were identified as ‘distinctive’, which was the basis for the ‘Significant’ category.

LURC’s Comprehensive Land Use Plan includes Myrick Lake in Management Class 5: lakes approaching heavily developed status, which is for lakes with less than 20 acres or 1,000 feet of frontage per dwelling unit taken as an average around the entire lake.

<sup>17</sup> The Maine Wildlands Lake Assessment, the Maine Atlas and Gazetteer, and Google Maps refer to it as Myrick Pond. USGS refers to it as Myrick Lake.

<sup>18</sup> Maine State Planning Office. Scenic Lakes Character Evaluation in Maine’s Unorganized Towns. December, 1986. The ratings in the chart – from None to High – are taken from the SPO document. Individual scores for most categories are assumed.

**Table 3: Visual Characteristics of Myrick Lake**

FACTOR	DEFINITION	RATING	MAX. PTS.	SCORE
Relief	Complexity of relief Dramatic relief	Low	30	10
Physical Features	Cliffs, vertical ledges, slab ledges, rockslides, boulders, islands, beaches.	None	25	0
Shoreline Configuration	Relative complexity of the shoreline.	Low	15	5
Vegetation Diversity	Four possible types were identified: mixed hardwood/softwoods; softwoods; marsh; super-story trees.	Low	15	5
Special Features	Water clarity Opportunities for wildlife viewing	None	15	0
Inharmonious Development	Residential development, visible roads, powerlines, etc.	Low/None	-20	0
<b>TOTAL</b>				<b>20</b>

Maine Department of Inland Fisheries and Wildlife surveyed the lake in 1974 and issued the following:

*Myrick Pond is located at the base of the northeastern slope of Tunk Mountain in the picturesque, hilly township of T10 SD. The pond is reached by traveling about 5 miles over a rough, 4-wheel-drive, woods road which leaves Route 182 (the Black Woods Road) near Fox Pond. Boats and canoes must be dragged or carried about 50 yards down a slope.*

*The shoreline consists of mixed coniferous and deciduous trees. Yellow and white birch enhance the scenery, and a good view of Tunk Mountain is afforded the visitor. Large areas of emergent vegetation exist at the mouth of Ash Bog Stream and in the outlet cove. An old dam, no longer in existence, formerly maintained the water level about 3-5 feet higher than at present. Two inconspicuous camps do not detract from the pond's wilderness character.*

*Myrick Pond is a shallow, acidic, brown-colored body of water. The cooler, deeper water is seriously deficient in dissolved oxygen. Although no trout were obtained during the survey, ice fishermen catch some every winter. These brook trout are generally small and below average in condition. Natural trout populations in the inlet and outlet are undoubtedly providing the fish which are caught in the pond. Suitable brook trout spawning gravel in these streams is influenced by cold springs. As long as access by trout to these streams remains unimpeded, the pond will probably continue to provide anglers with a limited number of small native brook trout. Stocking is not recommended.<sup>19</sup>*

**Public Uses.** Recreational uses of Myrick Lake include boating, fishing, ice fishing, swimming, and seasonal camps. The use of the lake is limited by lack of formal access. Several seasonal camps are located on the pond at the north and southern end.

**Viewer Expectations.** People who use Myrick Lake are expected to have high expectations of scenic quality, given the remote nature of the pond, the lack of obvious human intrusions, and the access off Route 182 (Blackwoods Scenic Byway).

<sup>19</sup> Maine Department of Inland Fisheries and Wildlife. Myrick Pond, T10SD, Hancock Co. Surveyed August, 1974.

**Project Impact.** Viewshed Map E (which does not consider the screening effects of vegetation) indicates that 6± of the turbines may be visible at the extreme southern end of the pond, over an arc of 11°. However, by taking existing vegetation into account, especially the mature pines that line the shoreline, it appears that the tops of a few turbines may be visible from the southern portion of the lake; more may be visible during the leaf-off seasons. Several of the turbine lights may be visible, filtered through the upper branches of the shoreline trees.

**Potential Effect on Public Use.** Since the turbines are not expected to be highly visible, their presence (if seen at all), should not have a significant effect on the public use of Myrick Lake.

**Conclusion.** The Bull Hill Wind Project should not significantly compromise views from Myrick Lake. The Project should not have an unreasonable adverse effect on its scenic character or the uses related to the scenic character of the pond.

## DONNELL POND

**Context.** Donnell Pond, at 1,120 acres, is the second largest of the 14 lakes and ponds in the Donnell Pond Unit (The largest is Tunk Lake at 2,010 acres.) Most of the pond is located in T9 SD; a small portion (near the boat launch at Card Mill) is located in the town of Franklin.

The lake is pinwheel-shaped, with three main fingers. The western portion is the most heavily developed, with camps lining a narrow cove that terminates at a small dam and the boat launch. The northern section is composed of ‘the Narrows,’ which leads into Martin Ridge Cove, where a dozen camps and other structures are located. Recreational facilities are concentrated at the southern end, with very popular campsites, beaches, and picnic areas with views of Schoodic Mountain and Black Mountain. According to the Downeast Region Management Plan, 86% of the shoreline is within the Donnell Pond Unit. Eight miles (66% of the shoreline) is held in fee by the Department of Conservation; another 3.4 miles (20% of the shoreline) is protected by a scenic easement. According to the Management Plan, “The extensive sand beaches of Donnell Pond make this area an increasingly popular destination for day users and campers. A combination of scenic surroundings and the pond’s popularity for boating provide an attractive setting for camping and day use, and give this area a quality and experience often sought after within Maine’s State Park system.”<sup>20</sup>

The view from the surface of Donnell Pond is very dynamic, i.e., the profile of the hills and mountains rising above the shoreline constantly changes as the viewer moves, unfolding and closing views to more distant points in a matter of a few hundred yards. The mature pines along the shoreline and on the islands also contribute to the complexity of the viewing experience by screening more distant views.

**Significance.** Notwithstanding the camps noted above, the Maine Wildlands Lakes Assessment notes that the lake is accessible and undeveloped and received a resource rating of ‘outstanding’ for its scenic resources, as well as its fisheries and shore character. The Assessment assigned Donnell Pond to Resource Class 1A.

Prior to the publication of the Maine Wildlands Lakes Assessment, the State Planning Office issued the Scenic Lakes Character Evaluation in Maine’s Unorganized Towns, which evaluated the scenic characteristics of all 1,509 lakes and ponds (with a surface area greater than 10 acres) in LURC territory. The Evaluation was based on six criteria: relief, physical features, shoreline configuration, vegetation

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<sup>20</sup> Downeast Region Management Plan, Maine Department of Conservation, Bureau of Parks and Lands, Augusta, Maine. March 2007.

diversity, special features, and inharmonious development. A point system was developed to assign a rating to each of the criteria, depending upon their presence in the landscape. The following table provides a short description of each of the criteria and summarizes the findings for Donnell Pond <sup>21</sup>:

**Table 4: Visual Characteristics of Donnell Pond**

FACTOR	DEFINITION	RATING	MAX. PTS.	SCORE
Relief	Complexity of relief Dramatic relief	Medium	30	20
Physical Features	Cliffs, vertical ledges, slab ledges, rockslides, boulders, islands, beaches.	High	25	25
Shoreline Configuration	Relative complexity of the shoreline.	Medium	15	10
Vegetation Diversity	Four possible types were identified: mixed hardwood/softwoods; softwoods; marsh; super-story trees.	None	15	0
Special Features	Water clarity Opportunities for wildlife viewing	Medium	15	10
Inharmonious Development	Residential development, visible roads, powerlines, etc.	Medium	-20 <sup>22</sup>	-5
<b>TOTAL</b>				<b>60</b>

A total of 118 lakes, including Donnell Pond, with a total of 50 or more points were identified as ‘Outstanding’ in the Evaluation. There were 162 lakes that achieved a score between 20 to 45 points and were identified as ‘distinctive’, which was the basis for the ‘Significant’ category.

LURC’s Comprehensive Land Use Plan includes Donnell Pond in Management Class 4, high value, developed lakes. The criteria for this class is two or more outstanding resource values; accessible to within 1/4 mile by 2 wheel drive vehicles; more than one development unit per mile; not included in Management Class 3 (potentially suitable for development).

The significance of Donnell Pond is described in Maine’s Finest Lakes:

**Summary of Significance:** *Donnell Pond is considered an exceptional resource, with outstanding fisheries, scenic qualities, and shore characteristics, and significant cultural values.*

**General Description:** *This pristine lake is located in the Ellsworth area of eastern Maine, nestled at the base of several scenic coastal mountains, but easily accessed from Route 182. In 1988, much of the area around the pond was purchased by the State due to its significance as a natural resource. There were five seasonal dwellings on the pond as of 1988. Maximum depth is 119 feet and average depth is 33 feet.*

<sup>21</sup> Maine State Planning Office. Scenic Lakes Character Evaluation in Maine’s Unorganized Towns. December, 1986. The ratings in the chart – from None to High – are taken from the SPO document. Individual scores for most categories are assumed.

<sup>22</sup> Maine State Planning Office. Scenic Lakes Character Evaluation in Maine’s Unorganized Towns. December, 1986. 20 Points were deducted for lakes with drastic changes in water levels; 10 points were deducted if inharmonious development was rated as ‘high’; 5 points were deducted if inharmonious development was rated as ‘medium’.

**Description of Significant Resource Features**

**Scenic:** Dramatic relief, numerous sand beaches, boulders, and islands combine to make this an outstanding scenic resource.

**Shore Character:** The shore character of Donnell Pond is considered outstanding because of the many natural beaches dominating the shoreline.<sup>23</sup>

Maine Department of Inland Fisheries and Wildlife surveyed the lake in 2001 and issued the following report:

*Donnell Pond is a very scenic body of water located at the base of Schoodic Mountain. An unusual feature of this pond is the sand beaches that extend back from the shoreline into the woods at several locations. As a result of a land-swap, the Bureau of Public Lands now owns most of these beaches. They, along with much of the shoreline, will remain largely undeveloped for future generations to enjoy. Access is over the main camp road off Route 182. A fair public boat launching site is present adjacent to the outlet.*

*Donnell is a classic oligotrophic water which provides excellent habitat for coldwater sportfish. Survey data indicate that in most years, from 25-40% of the salmon catch is comprised of wild fish. Numerous electrofishing surveys have revealed that the outlet, which contains sections of very good to excellent spawning and nursery habitat, produces considerable numbers of juvenile salmon. Salmon are stocked at low densities to augment this wild population with the objective of providing a reasonably good fishery for 2-pound salmon. To help achieve this objective, special regulations include a 16 in minimum length limit and a one fish daily bag limit on salmon.*

*An experimental lake trout stocking program carried out from 1976-79 was a failure. The likely cause was an excessive stocking rate. Occasional low-density lake trout stockings in the mid 1980's provided some good fishing. However, because these stockings adversely impacted salmon (the primary sportfish) growth, they were terminated.*

*At times, white perch provide good action. A fairly good proportion of a typical catch is comprised of fish in the attractive 10-12 inch range. Occasionally, a lucky angler will catch an unusually large 14-inch perch.*

*In the summer of 2001, we received reports that some camp owners were catching smallmouth bass off their docks in the outlet cove. Sadly, in August, a biologist confirmed their presence. As this illegally introduced species increases in abundance, some will move into the outlet where they will compete with and prey upon wild young of the year salmon. Unfortunately, this is yet another classic example of how the epidemic of illegal introductions by the public is destroying some of our best fisheries. Maine's highly important fishery resources are suffering considerable damage from these insidious acts.<sup>24</sup>*

**Public Uses.** According to the Management Plan

*The Donnell Pond Unit offers excellent opportunities for remote and semi-remote recreational experiences. The quality of the lakes and ponds, along with its miles of undeveloped shoreline, sand*

<sup>23</sup> Maine's Finest Lakes: The Results of the Maine Lakes Study. Drew Parkin and John Lortie et al. A Report Prepared for the Maine Critical Areas Program, State Planning Office. Planning Report No. 90. October 1989.

<sup>24</sup> Maine Department of Inland Fisheries and Wildlife. Donnell Pond, T9SD and Franklin Twps, Hancock Co. Surveyed July, 1952. Revised 2001.

*beaches, hiking trails, and campsites in scenic surroundings combine to make this Unit of high recreational value for a variety of users. The recreation management goal for the Unit has been to maintain its remote to semi-remote natural character, while developing and maintaining facilities and opportunities that best take advantage of these attributes. The extensive sand beaches of Donnell Pond make this area an increasingly popular destination for day users and campers. A combination of scenic surroundings and the pond's popularity for boating provide an attractive setting for camping and day use, and give this area a quality and experience often sought after within Maine's State Park system.*<sup>25</sup>

*Boating.* Boat access is provided at the Card Mill boat launching site at the western end of the pond. This is a basic facility with a gravel ramp suitable for trailered boats, a parking area for 20± vehicles, an information kiosk, and an outhouse. Personal watercraft are prohibited on Donnell Pond. The Project would not be visible from the boat launch.

The popularity of the lake for boating is summarized in the Management Plan, which notes “it is not unusual during the spring, summer, and fall seasons to see overflow parking along the access road to this site. Acquisition and site improvement to this site took place in 2000.”<sup>26</sup>

*Camping.* At total of 14 water-access campsites are located on Donnell Pond<sup>27</sup>, all in the southerly ‘finger’ of the pond. Two are located in a small, protected cove on the western shoreline facing Black Mountain. Eight campsites are designated near Redman’s Beach at the northern end of this section of the pond. These sites are oriented to the south toward Schoodic Mountain and to the west to Fiery Mountain. The remaining sites (both individual and a group site) are found at Schoodic Beach, at the extreme southern end of the pond. These sites are oriented to the north, with Black Mountain and Fiery Mountain framing the view of pond. The Schoodic Beach sites can also be accessed from the Schoodic Beach parking area, 0.5 miles to the south. The Project will not be visible from any of these campsites, due to their orientation, topography, and riparian vegetation. One or two of the turbines will be visible from the far west end of Schoodic Beach (west of the group campsite), at a distance of 8.01 miles.

*Swimming/Picnicking.* Donnell Pond is noted for its many natural beaches that are located on the shoreline. Schoodic Beach, at the southern end of the pond, is a popular destination for swimming, picnicking, and camping. Its 900-foot length features picnic tables, fire rings, groves of white birches, and a wide coarse-grained beach in the shadow of Black Mountain. The beach is easily accessed from a 20±-car parking area that also serves Schoodic Mountain and Black Mountain. In addition to walking in, people also arrive at the beach by motorboat, canoe/kayak, and floatplane. As noted above, two of the turbines would be visible from the western end of the beach, at a distance greater than 8 miles. No turbines would be visible from the eastern 2/3rds of the beach, which includes the group camping area, individual campsites, and the information kiosk.

Redmans Beach<sup>28</sup>, on the northern end of the southerly ‘finger’, is similar in character, with a broad beach shaded by mature trees, and rudimentary facilities for picnicking and camping. Redmans Beach is also very popular, especially with summer camp groups. The beach is oriented to the south and will not have views of the Project.

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<sup>25</sup> Downeast Region Management Plan, Maine Department of Conservation, Bureau of Parks and Lands, Augusta, Maine. March 2007.

<sup>26</sup> Downeast Region Management Plan, Maine Department of Conservation, Bureau of Parks and Lands, Augusta, Maine. March 2007.

<sup>27</sup> Ibid.

<sup>28</sup> Redmans Beach is also known as Black Beach on the 7.5 minute USGS Quadrangle Map for Sullivan, Maine 1982.

The use levels of the beaches are mentioned in the Management Plan, which notes:

- *The popularity of Schoodic Beach for day use and camping, as well as other areas around the Unit, has required significant staff time to be spent on operational and maintenance needs.*
- *There is need to delineate a group use camping area separate from the smaller, family sites on Donnell Pond. Summer camps and other large groups are monopolizing camping areas on Redmans Beach in particular.*

*Seasonal Camps.* Camps are concentrated in two locations on the pond. The largest group is at Card Mill on the western end of the pond, where 50± camps are situated on both sides of the extended cove that terminates at the boat launch. While most of the camps are oriented to the cove, several are at the point where it flares out into the pond, where they are visible from Redmans Beach and the surrounding water. The second group of camps is located on the northern end of the pond in Martin Ridge Cove. The 12± camps and larger structures are highly visible from the northern portion of the pond.

To gain a perspective on Donnell Pond, a recreational use survey was conducted and interviewees were asked to rate a photograph of the view from the southerly end of Donnell Pond looking north, toward the center of the pond. They were then asked to rate the same view, but this time with a photosimulation of the Bull Hill project. (See Appendix D.) The photosimulation was developed from a point on the pond where the most number of turbines would be visible according to the Viewshed Maps. In the photosimulation eleven turbines are fully or partially visible at a distance of 7.7± miles.

**Viewer Expectations.** People who use Donnell Pond are anticipated to have high expectations of natural scenic quality, mixed with human development, given the generally undeveloped nature of the shoreline, the presence of two highly visible mountains, the nearby Scenic Byway, the description of the Donnell Pond Unit on the State's web page, and the designation as Maine Public Reserve Land. People's expectations may be tempered to some extent by the highly visible development along the shoreline near the boat access in Franklin and in Martin Ridge Cove, the relative ease of access, and the amount of use that the pond receives. As noted above, the Downeast Management Plan says "the extensive sand beaches of Donnell Pond make this area an increasingly popular destination for day users and campers. A combination of scenic surroundings and the pond's popularity for boating provide an attractive setting for camping and day use, and give this area a quality and experience often sought after within Maine's State Park system."<sup>29</sup> As a way of illustrating the pond's popularity and use patterns, the Management Plan includes a photograph of Schoodic Beach with a floatplane and several motorboats at the water's edge.

People who participated in the Columbus Day intercept survey rated a photograph of the view from Donnell Pond looking north (without the Project in place). On a seven point scale (where 1 is the lowest scenic value and 7 is the highest), Donnell Pond rated a 5.5, with 20% giving it a 7.

**Visual Impact.** The viewshed maps indicate that up between 1 and 9 turbines within 8 miles may be visible from the Narrows south to a point near the western end of Schoodic Beach over an arc of 7-8°. Between 1-5 turbines within 8 miles may be visible from a few locations in Martin Ridge Cove at the northern end of the pond. Based upon the viewshed maps, at least one turbine within 8 miles would be visible from approximately 19 % of the surface of the lake. The greatest number of turbines within eight miles would be seen at the southern end of the pond, where between 6 and 9 turbines would be visible in a narrow north-south area near the western shoreline. (See Viewshed Maps.) This situation occurs on approximately 1% of the surface of the pond. Photosimulation 4 illustrates that the turbines from this

<sup>29</sup> Downeast Region Management Plan, Maine Department of Conservation, Bureau of Parks and Lands, Augusta, Maine. March 2007.

viewpoint would be seen at a low point on the horizon, and in conjunction with the residential development in Martin Ridge Cove.

The red warning lights on several of the turbines will be visible from various points on the pond at distances of 5.6 to 8 miles. The lights will appear very low to the horizon and occupy an arc of 7-8° (approximately four thumb widths, seen at arms length). The lights will not be visible from any of the designated campsites on the shoreline of Donnell Pond. The private camps on the pond are all oriented away from the Project and should not have views of the lights. One light will be visible from the western end of Schoodic Beach at the southern end of Donnell Pond, at a distance of 8.0 miles. Lights will also be visible from the mountains within the Donnell Pond Unit. However, there are no campsites on these mountains, and the trails leading to the summits are not conducive to nighttime hiking.

Photosimulations 4 and 5 illustrate the visual impact of the Project on Donnell Pond. Photosimulation 4 is based on photographs taken from a point near the southeastern end of the lake, north of Schoodic Beach, where up to 9 turbines within 8 miles will be visible. From this location, the turbines would be seen in conjunction with a series of low hills that rise over the pond at its far northern end, and would not be a dominant part of the landscape.

Photosimulation 5 is based on photographs taken from a point 225 feet north of Cape Rosier Point in Donnell Pond looking north up the Narrows. From this location up to 4 turbines would be seen to the left of a small hill on the west side of Otter Bog Mountain, at a distance of at least 6.8 miles. Even though the viewpoint is closer than Photosimulation 4, the turbines would be less visible due to the intervening landforms and the vegetation on the hills near the water. The low hills to the left of the turbines in the photograph are part of a conservation easement that was acquired to protect the scenic integrity of the shoreline.<sup>30</sup>

The primary impact will be on people who fish or boat on the lake. The presence of the turbines will have an effect on the character of Donnell Pond by introducing man-made elements in a largely natural landscape and present a contrast in form, line, and color. At viewing distance of 5.6 to 8 miles, the turbines will appear to be relatively small when compared with the surrounding mountains and should not present an unacceptable contrast in scale. Where the turbines are visible, they are primarily seen in the valleys between small hills and mountains, and not on the more prominent ridgelines. The turbines will not block views of the surrounding mountains from any point on Donnell Pond. The presence of the turbines will not have an effect on the lake's relief, physical features, shoreline configuration, or its special features, characteristics that accounted for the majority of points it received in the Scenic Lakes Character Evaluation (summarized in Table 4).

Turbines would not be visible from any of the designated campsites or the seasonal camps. Two turbines would be visible from the far western portion of Schoodic Beach, but at a distance of over 8 miles. The Project would not be visible from Redmans Beach.

**Potential Effect on Public Use.** The addition of the Project to the view dropped the respondents' rating of the scenic value of the view from Donnell Pond from 5.50 to 4.62 on a 7-point scale (where 7 is the highest scenic quality). The majority of the respondents (51%) did not change their ratings of the scenic value of the pond once they were shown the photosimulation. On average, the rating of the pond dropped by 0.88 point.

Most respondents (75%) indicated that the addition of a wind farm would not affect their likelihood of

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<sup>30</sup> Downeast Region Management Plan, Maine Department of Conservation, Bureau of Parks and Lands, Augusta, Maine. March 2007.

returning to the Donnell Pond Unit as a whole. In addition, 5% of the respondents indicated that they would more likely return, while 3% said that they would be less likely to return.

With regards to the use of Donnell Pond, most respondents (78%) indicated that the addition of the Project to the view would not affect their use of Donnell Pond for water activities such as boating, canoeing, kayaking, swimming, or fishing. In addition, 4% of the respondents indicated that they would more likely return to Donnell Pond for water activities, while 3% said that they would be less likely to return to Donnell Pond for water activities.

**Conclusion.** The Bull Hill Wind Project will have an adverse effect on the views from Donnell Pond by introducing large, man-made elements in the background of a generally natural, highly scenic landscape. However, the change will be noticeable over a relatively small portion of the pond (approximately 1/5<sup>th</sup>) and only by those heading toward the Project. The turbines would also be seen in the context of a landscape that already includes a communications tower, shoreline development, and other forms of development. The presence of the turbines should not have an unreasonable adverse effect on the scenic character or the uses related to the scenic character of Donnell Pond.

***6E. A segment of a scenic river or stream identified as having unique or outstanding scenic attributes listed in Appendix G of the "Maine Rivers Study."***

There are no river or stream segments identified as having unique or outstanding scenic attributes within eight miles of the Project. The Narraguagus River, which has its headwaters east of the Project, is rated as an 'A' river by the Maine Rivers Study but is not recognized for its scenic resources. The East Branch Union River, which originates in Rocky Pond north of the Project, is rated as a 'C' river by the Maine Rivers Study but is not recognized for its scenic resources.

***6F. A scenic viewpoint located on state public reserved land or on a trail that is used exclusively for pedestrian use, such as the Appalachian Trail, that the Department of Conservation designates by rule adopted in accordance with section 3457.***

## **DONNELL POND UNIT MAINE PUBLIC RESERVE LAND**

The scenic viewpoints considered in this section are located on the summits of the major mountains within the Unit. While there are views from other locations (e.g., beaches and waterbodies), these are discussed under Donnell Pond (above) or are greater than eight miles from the Project. TJD&A visited Schoodic Mountain (beyond the eight-mile limit), both peaks of Black Mountain, Tunk Mountain, Caribou Mountain, and Fiery Mountain. These peaks were considered to be characteristic of the hiking experience within the study area. Many of the other peaks in the Unit have limited or no access or are lower in elevation.

***Recreational Use Survey.*** As noted above, a three-day intercept survey was performed over the Columbus Day weekend to gain a perspective on recreational use in the Donnell Pond Unit. In addition to the survey questions designed for water-based recreation, interviewees were asked a series of questions regarding their use of the mountains in the Unit, and more specifically Black Mountain. This mountain was selected for a number of reasons: the top of Schoodic Mountain, the most popular peak in the Donnell Pond Unit, is greater than eight miles from the Project; Black Mountain is considered a similar experience in terms of view and hiking time; there are multiple trails to the summit of Black Mountain

which are well-marked; trailheads are easy to find; and parking is adequate. Market Decisions was also looking for a viewpoint that was reasonably well used in order to generate a representative sampling of hikers in the Donnell Pond Unit.

Hikers on top of the East Peak of Black Mountain were asked to rate the view looking both north (toward Bull Hill and the project site) and south (toward a more complex view that extended out to the mountains of Acadia National Park and the Atlantic Ocean), and then to rate a photograph of the view looking north. They were then asked to rate the same view, but with a photosimulation of the Project in place. The results of this part of the survey are described below.

**Context.** The Donnell Pond Unit is a Maine Public Reserve Land that is comprised of 15,384 acres of remote forest land. It is known for its wooded lakes, secluded ponds, and relatively low mountains that afford panoramic views of the coastline and surrounding landscape. The Donnell Pond Unit is one of 29 separate units of the Maine Public Reserved Lands system, which total more than a half million acres of land throughout the state. These properties are actively managed for a variety of resource values, including recreation, wildlife, and timber.

The original acquisition of the Donnell Pond Unit took place in 1988 through a complex, five-way land trade and purchase transaction. Additional purchases and other transactions in 1994, 1998, 2001, and 2003 added land on Spring River Lake, the southern slopes of Tunk Mountain, the north, eastern, and southwest shore of Tunk Lake, the Card Mill boat launching site, the Fiery Mountain/Little Pond area, and a block north of Spring River Lake. In addition to the lands it holds in fee, the Bureau also holds two conservation easements that apply to 3.4± miles of frontage on Donnell Pond to protect scenic values as seen from the Unit. There are no provisions for public access or recreation on these properties.

The Unit is also adjacent to two parcels of private land owned containing 1,400 acres in conservation easements held by the Maine Department of Inland Fisheries and Wildlife. These parcels protect frontage on the west side of Tunk Lake and encompass the summit of Catherine Mountain. DIF&W also holds six other easements on nearby private lands to protect viewsheds and lakeshore quality.<sup>31</sup>

The Unit's terrain is generally rolling to mountainous, with much of the lowlands being wetlands and open water. Approximately 91% of the Unit is forested. The highest peaks in the Unit are found on Black Mountain (1,049 and 1,094 feet) and Schoodic Mountain (1,060 feet). The summit of Tunk Mountain (1,140 feet) is located on private land and is described in Section 6.H below. Views from Caribou Mountain (960 feet) are oriented to the south. There are no views from Fiery Mountain (553 feet).

**Significance.** The Department of Conservation's website describes the Donnell Pond Unit as: "more than 14,000 acres of remote forested land with crystal clear lakes, secluded ponds, and mountains with panoramic views. Located in Hancock County between Franklin and Cherryfield, this is where visitors can enjoy outdoor recreation in a scenic, remote setting." It lists the following activities that are possible within the Unit: boating, camping, canoeing, cross-country skiing, fishing, hiking (trails), hunting, snowshoeing, swimming, and watching wildlife.<sup>32</sup>

The AMC Maine Mountain Guide provides a description of the hike up Black Mountain: "The easternmost and highest peak of Black Mtn. (is) known locally as Bald Peak, it has beautiful 360-degree

<sup>31</sup> Downeast Region Management Plan, Maine Department of Conservation, Bureau of Parks and Lands, Augusta, Maine. P. 31. March 2007.

<sup>32</sup> [www.maine.gov/cgi-bin/online/doc/parksearch/search\\_name.pl?state\\_park=&historic\\_site=&public\\_reserved\\_land=48&shared\\_use\\_trails=&option=search](http://www.maine.gov/cgi-bin/online/doc/parksearch/search_name.pl?state_park=&historic_site=&public_reserved_land=48&shared_use_trails=&option=search)

views of Downeast Maine.”<sup>33</sup>

The Downeast Management Plan recognizes the scenic quality throughout the Unit as a valuable resource that needs to be considered in any management decisions related to land use activities. The ridgelines and low mountains that characterize the area offer panoramic views of coastal bays and islands, lakes, ponds, cliffs, and forestland, often extending well beyond the Unit.

The mountains within and near the Unit offer a recreation experience that is easily accessible to visitors to the Bar Harbor / Downeast region of Maine. The peaks are low enough for families to enjoy while offering a rewarding experience, both along the trails and at the summits. The character of each mountain is quite different, as noted in the photographs in Appendix B.

Black Mountain is actually three peaks (West Peak, South, and East Peak), separated by a deep valley and Wizard Pond. East Peak (where the survey was conducted) offers a 360° panorama, while South and West Peaks are oriented toward the south and the mountains of Mount Desert Island. The summit is reached by trails from the Schoodic Beach Parking area, Schoodic Beach, or a trailhead off the Black Mountain Road.

Schoodic Mountain is the most popular peak in the Donnell Pond Unit, and is primarily accessed from the Schoodic Beach parking area. The summit offers a 360° panorama that includes views of Schoodic Bog on the south, Tunk Lake on the southeast, Black Mountain and Caribou Mountain on the east, Donnell Pond on the north, and Mount Desert Island on the southwest. A fenced communications tower, a solar collector, and a small maintenance building are highly visible elements on the summit. The network of trails on the summit has resulted in extensive loss of alpine vegetation. Schoodic Mountain was inventoried by the Downeast Coastal Scenic Inventory and given a rating of 89 (out of a possible 100).

BPL is actively improving the hiking trails and access points on several of the peaks in the unit. Maine Conservation Corps members have been working on Tunk Mountain and Caribou Mountain this fall to clear trails, create new trails, and repair stonework as part of an ongoing effort to expand recreational opportunities in the area. Future plans call for improvements to the Tunk Mountain trailhead and parking area and additional trail connections between Route 182 and Caribou Mountain.<sup>34</sup>

**Public Uses.** A developed network of hiking trails is found throughout the Unit, centered on the Schoodic Beach parking area. The Management Plan notes that there is significant potential to expand the trail system and to further interconnect many of the mountains. A total of 15 miles of designated trails currently exist, with the potential to add an additional 15 miles in the future. Two Maine Conservation Corps (MCC) trail crews (along with public volunteers) have been working during October and November 2010 on clearing new trails, stone work, and other activities to improve the trails on Tunk Mountain and Caribou Mountain.

The intercept survey supports the Management Plan's observations about the relative popularity of Schoodic Mountain. Of those hikers interviewed, the majority (72%) were planning on hiking Schoodic Mountain, while 19% were climbing Black Mountain. An additional 23% listed Schoodic Beach as their destination, and 17% responded with 'other'. Among those hikers on Black Mountain, 63% reported that they had visited the mountain at least once in the past year, half of whom had hiked it more than once.

It is clear from the width and condition of the trail that Schoodic receives far more visitor use than either

<sup>33</sup> Maine Mountain Guide, 9<sup>th</sup> Edition. Appalachian Mountain Club. Boston. 2005.

<sup>34</sup> From the Field: Maine Department of Conservation newsletter. Oct. 22, 2010; and Rex Turner, Bureau of Parks and Lands. Personal Communications. December 6, 2010.

Black Mountain or Tunk Mountain. (See Photo Appendix B).

The Bureau of Parks and Lands has initiated a visitor use survey for the Donnell Pond Unit. Information is being collected by self-administered surveys at various stations around the unit. The survey will provide BPL with information on demographics, activities, and duration of use, as well as comments on requested recreational improvements. The survey is currently being tabulated; results are expected in early 2011.<sup>35</sup>

**Viewer Expectations.** People who hike Black Mountain are expected to have high expectations of scenic quality, given the quality of the trail ascending the mountain, the generally undeveloped nature of the lakes visible from the summit, the nearby Scenic Byway, the description of the Donnell Pond Unit on the State's web page, and the designation as Maine Public Reserve Land.

When asked about their reasons for being in the Donnell Pond Unit, people offered a wide range of reasons, including hiking, foliage watching, spending time with family and company, enjoying the views, and exercise. While many people reported that the view was a reason for being in the Donnell Pond Unit, it was not the reason most often given.

People who participated in the survey were asked to rate the views looking both north (inland, toward Bull Hill and Narraguagus Lake) and south (toward the ocean and Mount Desert Island). On a seven point scale (where 1 is the lowest scenic value and 7 is the highest), the view to the north was rated a 6.26, with 41% giving it a 7. The view to the south rated an average of 6.93, with 93% giving it a 7. When the same people were asked to rate a photograph of the northerly view, the average was very similar, 6.24.

**Project Impacts.** Photosimulation 3 from Black Mountain indicates that all 19 turbines would be visible from the summit over an arc of 11° at distances ranging from 7.9 to 10.4 miles. The five turbines within 8 miles would occupy an arc of 6°, which would be 1.7% of the total 360° view.

The presence of the turbines will have an adverse effect on the view from the summit of Black Mountain by introducing man-made elements in a largely natural landscape and present a contrast in form, line, and color. At viewing distance of 7.9 to 8 miles, the turbines will appear to be relatively small when compared with the surrounding low hills and background mountains and should not present an unacceptable contrast in scale. The turbines will be seen in a broad valley to the north and will not block views of the surrounding lakes or mountains.

**Potential Effect on Public Use.** The addition of the Project to the northerly view from Black Mountain dropped the respondents' rating of the scenic value of the view from 6.26 to 4.32 on a 7-point scale (an average decrease of 1.91). Most respondents (45%) indicated that their enjoyment of coming to Black Mountain would not be affected (rating of 4) by a change in the current views looking north that would include the proposed wind project. 4% stated the change in current views would have a very positive effect on their enjoyment (rating of 7) while 10% stated the change in current views would have a very negative effect on their enjoyment (rating of 1). Overall, 54% indicated that the Project would have no effect or would improve their enjoyment in returning. 47% indicated that it would affect their enjoyment upon returning.

**Conclusion.** The Bull Hill Wind Project will have an adverse effect on the northerly views from Black Mountain – and the views from several of the other mountains in the Donnell Pond Unit –

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<sup>35</sup> ME Bureau of Parks and Lands Recreation Use Survey; and Rex Turner, Bureau of Parks and Lands. Personal Communications. December 6, 2010.

by introducing large, man-made elements in a generally natural, scenic landscape. The change will affect a relatively small portion of the 360° view that hikers can enjoy on top of Black Mountain. The Project will have no effect on the most highly rated view, i.e., towards Mount Desert Island and Acadia National Park to the south. The Project should not have an unreasonable adverse effect on the scenic character or the uses related to the scenic character of Black Mountain. The Project will have no impact on Caribou Mountain or Fiery Mountain, since there are no northerly views from either of these peaks.

***6G. A scenic turnout on a scenic highway constructed by the Department of Transportation.***

Route 182, connecting the towns of Franklin and Cherryfield, has been designated as the Blackwoods Scenic Byway by the Maine Department of Transportation. While several miles of the byway are located in the southern part of the study area, there are no scenic turnouts that have been constructed by the Maine Department of Transportation with views of the Project. Views of the Project from the roadway are blocked throughout its length by topography and roadside vegetation. The Project should have no effect on the Blackwoods Scenic Byway.

***6H. Scenic viewpoints located in the coastal area.***

**TUNK MOUNTAIN**

**Context.** Tunk Mountain is the highest peak within the 8-mile study area. Its bald ledges and sharp profile make it an easily identified landmark in the area surrounding the Donnell Pond Unit. The southerly base of the mountain is part of the Maine Public Reserve Land; however, the summit of Tunk Mountain is held privately (The Nature Conservancy) and is not managed by the State.

**Significance.** Tunk Mountain is a much more linear peak and the closest significant mountain to the Project. Several trails from both the north and south sides lead to the top. Judged by the condition of the trails, the mountain does not appear to have significant use. The majority of the open views are to the southeast to west, and include Spring River Lake at the base of the mountain and the distant peaks on Mount Desert Island. One open ledge on the north side of the mountain looks toward the Project, which will be visible at a distance of 4.9 miles to the closest turbine. This view looks out to flatter landscape, and encompasses Narraguagus Lake, Molasses Pond, and Lead Mountain in the distance. This viewpoint is also the location of a small building and a communications antenna.

The AMC Maine Mountain Guide provides a description of the hike: “There is no trail on Tunk’s upper part, but bushwhacking is fairly easy...Once the trail crosses by the western end of (Mud) Pond, it rises sharply and becomes much less distinct as it passes through spruce forest. Eventually it breaks onto open ledges on the slopes of the five-peaked summit ridge. The whole southern face of the mountain consists of cliffs and steep ledges. Views are limited but interesting, particularly those of Spring River Lake and the Black Hills.”<sup>36</sup>

Tunk Mountain was inventoried as part of the Downeast Coastal Scenic Inventory and given a rating of 81 (out of a possible 100). The Inventory provides the following description of the view:

Tunk Mountain is the northernmost and highest peak in the string of mountains that make (up) the

<sup>36</sup> Maine Mountain Guide, 9<sup>th</sup> Edition. Appalachian Mountain Club. Boston. 2005. Note: The Guide makes reference to a trailhead just east of Fox Pond; however, the trail is now gated with ‘No Trespassing’ signs.

Black Woods area. The climb takes about one hour and passes several ponds, climaxing in a steep ascent up a rocky face. There is a radio tower on the top that detracts somewhat from the view which is generally characterized as rustic with few imprints of man. The 360 degree view is excellent.<sup>37</sup>

As noted above, Maine Conservation Corps, working with BPL, is in the process of upgrading trails, improving trailheads, and providing better parking facilities for access to Tunk Mountain and Caribou Mountain.

**Public Uses.** Since the summit of Tunk Mountain is on private property there is no record of public use. However, it appears from the width and condition of the trail that Tunk Mountain receives far fewer visitors than either Black Mountain or Schoodic Mountain. (See Photo Appendix B).

**Viewer Expectations.** People who hike Tunk Mountain are expected to have high expectations of scenic quality, given the quality of the trail ascending the mountain, the generally undeveloped nature of the lakes visible from the summit, the nearby Scenic Byway, and the proximity to the Donnell Pond Unit.

**Project Impacts.** Photosimulation 2 from Tunk Mountain indicates that all 19 turbines would be visible from the viewpoint on the summit that has northerly views. From this viewpoint the turbines would be visible over an arc of 22° at distances ranging from 4.9 to 7.2 miles. The Project would not be visible in any of the more prominent southerly views from the summit.

The presence of the turbines will have an adverse impact on the northerly view from the summit of Tunk Mountain by introducing man-made elements in a largely natural landscape and presenting a contrast in form, line, and color. At viewing distances of 4.9 to 7.2 miles, the turbines will occupy a significant portion of the view looking north. The turbines will appear to be relatively small when compared with the surrounding low hills and background mountains. The turbines will be seen in a broad valley and will not block views of the surrounding lakes or mountains.

**Potential Effect on Public Use.** The addition of the Project to the northerly view from Tunk Mountain is expected to have an effect that is similar to, or slightly greater than (due to the increased proximity), that described above for Black Mountain, i.e., most respondents indicated that the Project would not affect their enjoyment of coming to the mountain; a small number (4%) stated the Project would have a very positive effect on their enjoyment; and 10% stated the Project would have a very negative effect on their enjoyment.

**Conclusion.** The Project will have an adverse effect on the northerly view from Tunk Mountain (see Photo Appendix B) by introducing large, man-made elements in a generally natural, scenic landscape. The Project will not be visible from the majority of the overlooks on Tunk Mountain, which are oriented to the south toward Frenchman Bay and the mountains of Mount Desert Island. The Project should not have an unreasonable adverse effect on the scenic character or the uses related to the scenic character of Tunk Mountain.

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<sup>37</sup> Downeast Coastal Scenic Inventory, Hancock and Washington Counties, Maine, prepared for the Maine State Planning Office Coastal Program by the Hancock County Planning Commission and Washington County Council of Governments. February, 2010. Schoodic Mountain is also inventoried, but is beyond the 8-mile study area.

## 7.0 SUMMARY

The Maine Wind Power Law established several criteria to determine whether expedited wind energy development significantly compromises views from a scenic resource of state or national significance such that the development has an unreasonable adverse effect on the scenic character or existing uses related to scenic character of the resource. The summary presented in Table 5 is based upon the information provided in the Visual Impact Assessment, the intercept survey conducted by Market Decisions, and other information on existing use patterns.<sup>38</sup>

The first five criteria evaluate the 8-mile study area, the immediate project area, the quality of the resource, existing use patterns and viewer expectations, and the purpose of the project:

- A Resource Significance:** This criterion reflects the designation of scenic significance by the State or Federal Government. All the resources on the table have been identified as Scenic Areas of State or National Significance. The light gray are significant resources; medium gray are outstanding resources;
- B Character of Surrounding Area:** This criterion evaluates the setting of the resource and its surrounding area. In most cases the surroundings have been noted as medium (generally of a natural condition for lakes and mountains, and of a typical Maine village condition for historic resources). The dark gray indicates high levels of landscape contrast (usually resulting from the juxtaposition of water and landforms).
- C Viewer Expectation:** This criterion takes into account the designation of scenic quality by state agencies, the intrinsic character of the resource, the presence of cultural modifications, and other factors. Intercept surveys of hikers in Maine have shown that people hike for many reasons other than to enjoy the scenery.
- D Purpose and Context:** This criterion is a reflection of how the Project contributes toward the state's goals for energy as per the Wind Energy Act. A medium gray color was assigned, since the project will make a moderate contribution toward achieving the State's goals.
- E.1 Extent, nature & duration of uses:** This criterion looks at the number of users, the potential for access (in the case of lakes and ponds), the type and extent of facilities, typical length of stay, and information from the intercept survey.

The last two criteria evaluate the possible effect that the Project may have on the use of the resource and the likely visual impacts:

- E.2 Effect on continued use and enjoyment:** This criterion is largely based on the intercept surveys to determine if the Project would significantly affect their continued use and enjoyment of the resource. If the Project will not be visible from the resource, the matrix is left blank (no effect). A light color indicates that the Project is not expected to have a major impact on people's continued use or enjoyment.
- F Scope and scale of project views:** This criterion looks at the number of turbines visible, their position in the landscape, the angle of view that they are seen over, and the distance from the observer. Only turbines within eight miles of the resource are considered.

If the Project is not visible from the resource, then the scenic impact is rated as "None" on Table 5. Myrick Lake is rated Low due to the low number of recreational users and difficult access. Narraguagus

<sup>38</sup> This section and the Summary of Evaluation Criteria is based upon the [Review of the Spruce Mountain Wind Project Visual Assessment](#), prepared for the Maine Department of Environmental Protection by James F. Palmer, June 11, 2010.

Lake is rated as Low tending to Medium due to the low number of users and the lack of public access, as well as the proximity and visibility of the Project. Donnell Pond is rated as Low tending to Medium due to the results of the intercept survey, the scenic quality of the place, the lack of visual contact from major recreation areas, the presence of development along the shoreline, and the limited and distant visibility of the Project.

Most of the mountains have a Low Overall Scenic Impact due to their relatively low number of users and distance to the Project. Both Black Mountain and Tunk Mountain were rated as Low tending to Medium due to their more established trail systems, greater elevations, and panoramic views toward the Project. The views from the mountains toward the Project, when present at all, are generally not the most significant views. The more significant southerly views, which include panoramas of Mount Desert Island, Frenchman Bay, and the nearby lakes, will not be affected by the Project.

## **8.0 CONCLUSION**

There are several scenic resources of state or national significance within the viewshed of the Bull Hill Wind Project. Within the 8-mile study area the most significant scenic resources are Donnell Pond, Narraguagus Lake, and the mountains in the Donnell Pond Unit.

Within this area, the Project will not be visible from any national natural landmarks, federally designated wilderness areas, properties on the National Register of Historic Places, National Parks, State Parks, scenic river segments, or MDOT scenic turnouts. Throughout the majority of this area, views of the wind turbines (“generating facilities”) are blocked by topography and roadside vegetation.

The associated facilities for the Project (i.e., the access road, the underground electrical collection system, the aboveground electrical transmission line, and the O&M facility) will have limited impact on views from scenic resources of state or national significance. The associated facilities are located in actively managed timberland that is generally out of view from the surrounding area. The associated facilities will not be of a location, character, or size to cause an unreasonable adverse visual affect on the scenic character of the study area.

The visual impact assessment examined the criteria established by the Maine Wind Power Law: i.e., the context, significance, existing public use, viewer expectations, project impact, and the potential effect on public use for each of the scenic resources of state or national significance. This information was used to make a determination of whether the project would significantly compromise views from these resources such that it would have an unreasonable adverse effect on its scenic character or the existing uses related to its scenic character. While a low to medium overall scenic impact on several of these resources is anticipated, the Bull Hill Wind Project should not have an unreasonable adverse impact on scenic values and existing uses of scenic resources of state or national significance.

