Section 17
Visual Analysis Report

17.0 VISUAL ANALYSIS

EXECUTIVE SUMMARY

Overview

Highland Wind LLC is proposing the Highland Wind Project (Project) a 128.6-megawatt (MW) wind generating facility in Highland Plantation and Pleasant Ridge Plantation, Somerset County, Maine. The Project includes 48 wind turbines, a 34.5-kilovolt (kV) electrical collector system, an electrical collection substation, a 115-kV generator lead, an Operations and Maintenance (O&M) building, and 4 permanent 80-meter meteorological (met) towers.

The Project will consist of the following components:

- A total of 48 turbines, along with associated electrical interconnection infrastructure and permanent met towers, will be installed in two distinct strings along approximately 9.5 miles of the ridges of Stewart Mountain, Witham Mountain, Bald Mountain, Burnt Hill, and Briggs Hill. Turbines will be located at elevations between 1,550 and 2,670 feet above sea level, on mountains that rise 1,300 to 1,500 feet above the surrounding valleys. All components of the turbine will be painted white.

  The western string will include 26 turbines located on the ridgeline that connects Stewart Mountain, Witham Mountain, and Bald Mountain. Most of this string will use Siemens SWT-2.3-93 turbines, with an 80-meter hub height, a 93-meter rotor diameter, and a maximum tip-of-blade height of 126.5 meters.[1]

  The eastern string will include 22 turbines extending from the northeastern end of Burnt Hill south to Briggs Hill. This string will use Siemens SWT-2.3-101 turbines, with an 80-meter hub height, a 101-meter rotor diameter, and a maximum tip-of-blade height of 130.5 meters.[2]

- 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 met towers. The final lighting plan is determined by FAA approval.

- Access to the Project site is proposed by upgrading and extending existing logging roads within the Project area. Access will be off Long Falls Dam Road in Highland Plantation. A 32-foot wide crane path will provide access along the ridgelines during construction. Half of the width of the ridgeline crane paths will be allowed to revegetate after construction.

- The electrical collector system will transfer power from the turbines to the proposed collector substation located north of Witham Mountain. These collector lines will be located underground along the ridgeline to reduce the Project footprint and to reduce potential line maintenance costs along the exposed ridges. The approximately 11-mile long 115-kV generator lead will connect the on-site collector station to the existing Wyman Dam substation located in Moscow, Maine, where power will be transferred to the Central Maine Power Company system and ultimately distributed to the New England grid.

The ridgeline area, including the location of the turbine arrays, O&M building, and collector substation, is managed by Wagner Forest Management Ltd. This land is used primarily for commercial timber production and has been harvested within the past 10 years or is currently being harvested. An extensive road system and clearings occur throughout the Project area as a result of these timber management

[1] Highland Wind LLC has not yet selected final turbine technology for the Project. The Siemens 93-meter turbine is the largest turbine being considered for most of the western ridge and thus is the machine used in this analysis.
[2] Final turbine technology for the east ridge has not yet been determined. The Siemens 101-meter turbine is the largest machine under consideration for this ridge.

activities. To the extent practicable, existing roads and clearings will be used for the proposed Project. Existing roads will need to be widened or in some locations realigned to meet minimum road widths and maximum slope requirements. Other land uses within the Project area include small-scaled agriculture, rural residential, and recreation.

The 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 the following.

- Milton Avery Peak and Little Bigelow Mountain in the Bigelow Preserve (Maine Public Reserve Land). The closest visible turbine will be 3.9 miles from the eastern ridge below Little Bigelow Mountain and 7.8 miles from the summit of Milton Avery Peak.
- Appalachian National Scenic Trail (AT). There will be approximately 0.75 mile of open and filtered views of the Project from the 18.9 miles of the AT that are within 8 miles of the Project. The most open views are from Avery Peak and Old Man's Head (approximately 0.25 mile) and Little Bigelow Mountain (several hundred feet of open views).
- Portions of Flagstaff Lake, (noted for significant scenic quality in the Maine Wildlands Lakes Assessment), located 2.6 miles from the closest turbine. The turbines will be most visible from the southeastern end of the 20,300-acre impoundment.
- Gilman Pond in Lexington Township (noted for significant scenic quality in the Maine Wildlands Lakes Assessment), located 6.1 miles from the closest turbine.
- The Kennebec River (noted for scenic resources in the Maine Rivers Study), located 3.0 miles from the closest turbine.[3]
- The Arnold Trail (National Register of Historic Places). Turbines will be visible from a few vantage points (primarily on or near the Carry Ponds) within eight miles of the turbines.

Conclusion

There are several scenic resources of state or national significance within the viewshed of the Project. Within the eight-mile study area, the most significant scenic resources are the views from Avery Peak on the AT in the Bigelow Preserve and the eastern end of Flagstaff Lake.

Within the eight-mile study area, the project will not be visible from any state parks, Maine Department of Transportation scenic turnouts, or scenic viewpoints located in the coastal area. Throughout the majority of the study area, views of the Project are blocked by topography and roadside vegetation.

For each of the scenic resources of state or national significance, the assessment examined its 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 visual impact on these resources is anticipated to be moderate to strong, the Project should not have an unreasonable adverse impact on scenic values and existing uses of scenic resources of state or national significance.

[3] The primary location where the turbines will be visible is the southeastern portion of Wyman Lake, which is not considered to have significant or outstanding scenic resources by the Maine Wildlands Lakes Assessment.

17.1 INTRODUCTION

17.1.1 Background

Terrence J. DeWan and Associates (TJD&A), landscape architects in Yarmouth, Maine, prepared this visual impact assessment (VIA) for the Highland Wind Project, being proposed by Highland Wind LLC. 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 focused on Highland Plantation and Pleasant Ridge Plantation and includes all the abutting towns and unorganized townships within eight miles of the project (see Figure 1: Expedited Windpower Permitting Areas in Vicinity of the Highland Wind Project). The limits of the eight-mile study are based upon the Maine Wind Power Law, which instructs the DEP 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 Highland Wind Project provided by Stantec, with input from other professional members of the design team. TJD&A created Figure 2: Viewshed Map Highland Wind Project with WindPro software to help determine the limits of potential project visibility.

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.

17.1.2 Field Investigations

Field data was collected by TJD&A personnel by a variety of means during site visits on October 27, 2008, July 9, 10, 25, and 28, and October 2, 2009. Fieldwork concentrated on evaluating and photographing scenic areas of state or national significance, as noted above.

Photographs of the project area were taken with a Nikon D300 digital camera, recording at the highest resolution. The camera was set to capture images equivalent to those taken by a film camera equipped with a 50 millimeter (i.e., 'normal') lens, which is comparable to a non-distorted image seen by the human eye.[4] Global Positioning System coordinates were recorded with a JOBO PhotoGPS mounted on the camera's hot-shoe to capture the exact location of each photograph. A selection of annotated representative views within the study area is included in Appendix A: Study Area Photographs, Highland Wind Project. Photographs were also used in the preparation of the photosimulations used in this VIA, which are provided in Appendix B: Photosimulations. All photographs of the study area are available on CD upon request.

17.1.3 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 Highland Wind Project. The photosimulations are provided in Appendix B: Photosimulations. The following section describes the methodology used to develop this image:

[4] The Nikon D300 was set to a focal length of 35 mm, based upon manufacturer's recommendations and field tests conducted by TJD&A.

- TJD&A prepared a viewshed map of the eight-mile study area with WindPRO[5] software to determine where any part of any of the turbines, access roads, or transmission line may be visible. The viewshed map is very conservative in that it does not account for the screening effects of existing vegetation, buildings, or other structures that will block views of the Project from most roads and population centers. (See Figure 2: Viewshed Map Highland Wind Project.)

- Fieldwork by TJD&A verified the relative accuracy of the viewshed map 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 A: Study Area Photographs were taken from publicly accessible locations to illustrate the wide variety of landscape types within the study area. Where possible, 'worse-case' photographs were taken (i.e., where the most number of turbines would be visible).

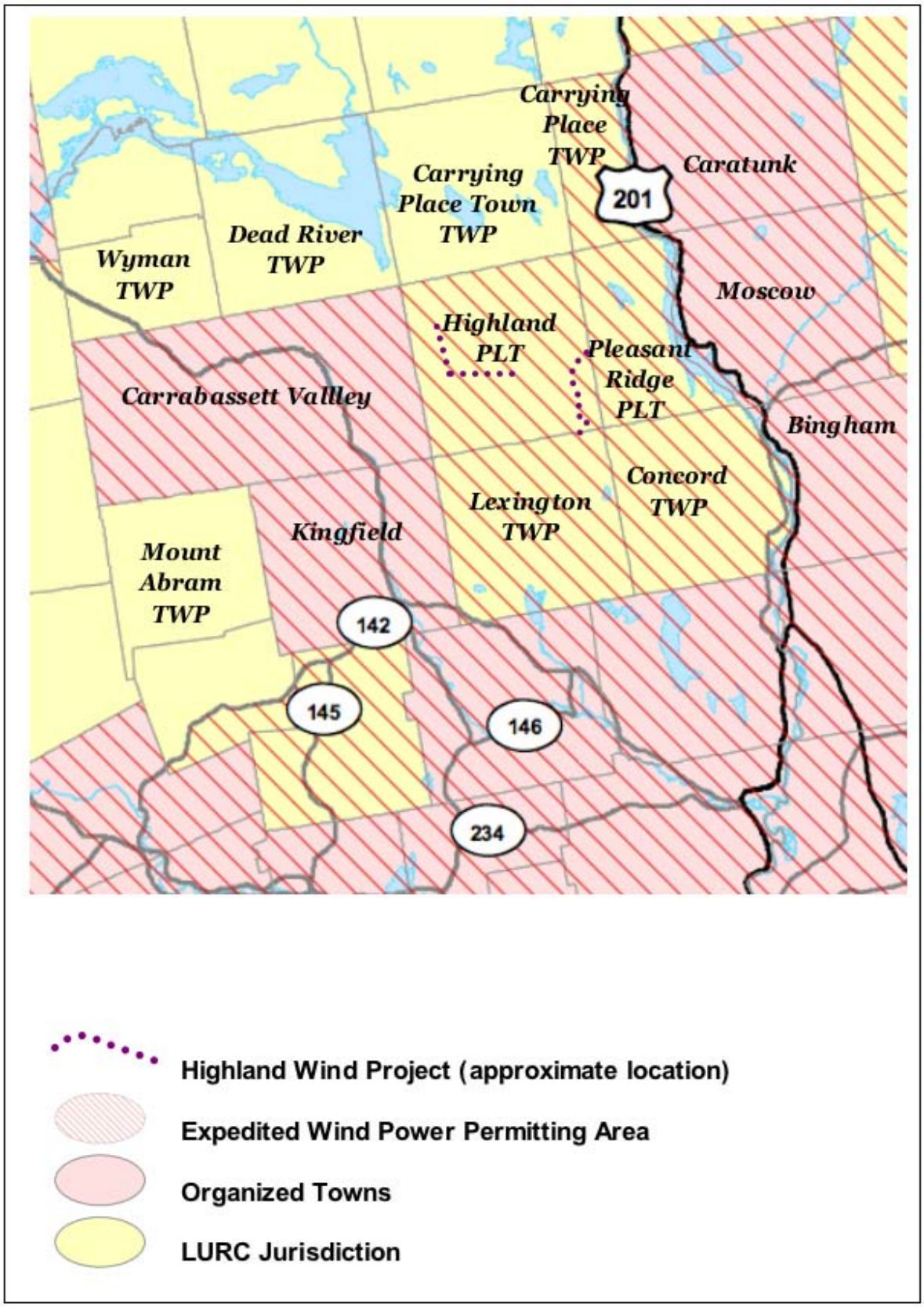
- Photosimulations were prepared by TJD&A using the Visual-Photo Montage WindPro module. A digital elevation model (DEM) of the Project area was created in WindPro from on-line data sources. The specifications of the wind turbines (location, manufacturer, model number, base height, rotor diameter, color) 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 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 and the accuracy of the viewshed maps and photosimulations.

[5] WindPro software was developed for the wind energy industry and is used world-wide for planning, design, and visual representation.

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



- Google Earth was used to determine the relative visibility of access roads, crane pads, and transmission lines. Where these associated facilities were found to be visible, the photosimulations were adjusted in Photoshop to illustrate changes in the texture and color of the surrounding forestland.

- The resultant 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 to approximate what the human eye would see.

- Two comparative panoramas from Avery Peak were prepared to illustrate a) the actual view (which shows that up to 44 turbines would be visible from this point) and b) the six turbines that would be located within eight miles of the viewpoint. As noted above, the Maine Legislature has determined that the effects of turbines located beyond eight miles from a scenic resource of state or national significance would be considered "insignificant" by the siting authority (LURC).

The legend in the panoramic views provides the following information:

- **Turbine Model**: the manufacturer and model number. The code indicates the electrical output rating in MW (e.g., 2.3 MW) and the rotor diameter in meters (e.g., 93m).

- **Hub Height**: The height of the turbine base in meters and feet.

- **Rotor Diameter**: The diameter of the turbine blades in meters and feet.

- **View Coordinates**: Latitude and Longitude of the photograph and computer model.

- **Viewer Elevation**: Approximate distance above mean sea level, in meters and feet.

- **Direction of View**: The compass direction from the viewpoint (indicated by a red dot and arrows on the USGS Viewpoint Location map).

- **Closest/Farthest 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 reviewer should hold the photosimulation from the eye to accurately replicate real-world conditions.

17.2 REGULATORY REQUIREMENTS

LD 2283 *An Act to Implement Recommendations of the Governor's Task Force on Wind Power Development* (the Wind Power Law) created a process to expedite wind power projects in places where they are most compatible with existing patterns of development and resource values. As demonstrated in Figure 1, the Expedited Windpower Permitting Area includes Highland Plantation and Pleasant Ridge Plantation, as well as all the surrounding towns and townships (with the exception of Carrying Place Town Township and Dead River Township). This VIA addresses only those impacts to be analyzed as set forth in the Wind Power Law.

The wind power legislation requires an applicant for an expedited wind energy development to provide DEP or LURC with a VIA of the development that addresses the evaluation criteria in § 3452.3 (above) if DEP or LURC determines such an assessment is necessary. There is a rebuttable presumption that a

visual impact assessment is not required for those portions of the development's generating facilities that are located more than three miles, measured horizontally, from a scenic resource of state or national significance. DEP or LURC may require a VIA for portions of the development's generating facilities located more than three miles and up to eight miles from a scenic resource of state or national significance if it finds there is substantial evidence that the pertinent scenic resource of state or national significance is significant and there is the potential for significant adverse effects. In determining whether an applicant for an expedited wind energy project must provide a VIA, DEP or LURC shall consider:

A. The significance of the potentially affected scenic resource of state or national significance;
B. The existing character of the surrounding area;
C. The expectations of the typical viewer;
D. The project purpose and the context of the proposed activity;
E. The extent, nature and duration of potentially affected public uses of the scenic resource of state or national significance and 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; and
F. The scope and scale of the potential effect of views of the generating facilities 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. A finding by DEP or LURC that the development's generating facilities are a highly visible feature in the landscape is not a solely sufficient basis for determination that an expedited wind energy project 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. In making its determination, DEP or LURC shall consider insignificant the effects of portions of the development's generating facilities located more than eight miles, measured horizontally, from a scenic resource of state or national significance.

Highland Wind LLC elected to conduct a VIA beyond three miles in recognition of the number and variety of scenic resources of state or national significance within eight miles of the project, primarily in Dead River Township and Carrying Place Town Township (neither of which are in the expedited permitting area).

17.3 PROJECT DESCRIPTION

The following section describes the visible components of the Highland Wind Project and its associated facilities.[6]

17.3.1 Wind Turbines

The 48 turbines used for Highland Wind Project will be located in two distinct strings. The western string will include 26 turbines located on the ridgeline that connects Stewart Mountain, Witham Mountain, and Bald Mountain. The meteorological data collected on this ridgeline suggests that weather conditions can be extreme, and that the wind resource is excellent. This string will use machines no larger than the Siemens SWT-2.3-93 turbine, with an 80-meter (262.5 feet) hub height, a 93-meter (305 feet) rotor diameter, and a maximum tip-of-blade height of 126.5 meters (415 feet).

The eastern string will include 22 turbines extending from the northeastern end of Burnt Hill south to Briggs Hill. Because of a more moderate wind capacity, larger machines will better maximize energy output. As a result, machines no larger than the Siemens SWT-2.3-101 turbines will be used along the eastern string to maximize energy output. These turbines also have an 80-meter hub height, a 101-meter (331 feet) rotor diameter, and a maximum tip-of-blade height of 130.5 meters (428 feet). Turbines will be located at elevations between 1,550 and 2,670 feet above sea level.

[6] 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’.

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. 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 4 m/s (9 mph). After the wind reaches a certain maximum velocity (generally 25 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 in-line (wind direction is parallel to the string, which limits the number of turbines that can operate) or when they are taken out of service for repair.

Depending upon the wind velocity, the blades will rotate at 6 to 16 revolutions per minute (RPM), which is equivalent to one revolution every 10.0 to 3.7 seconds. With unobstructed viewing conditions individual blades will be clearly visible with virtually no detectable blurring while they rotate.

The turbines will be spaced a minimum of two rotor diameters apart (186 to 202 meters/610 to 663 feet). 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 Federal Aviation Administration (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 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.

17.3.2 Project Lighting

Lighting for the project will follow 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 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± degrees of horizontal, the intensity of the light diminishes below the horizon, which minimizes impacts on surrounding land uses.

The greatest visual impact from lighting on scenic resources of state or national significance will occur on Gilman Pond, where the lights will be visible on the mountains at the north end of the lake. Hikers on Avery Peak or Little Bigelow Mountain after dusk will see the lights in conjunction with the lights at Sugarloaf ski area, and the commercial activity on Route 27 in Carrabassett Valley.

17.3.3 Ridgeline Roads

Each wind turbine will be linked by a 32 foot± wide temporary gravel road designed to provide safe access for the construction crane to reach each turbine site throughout installation process. In some instances the topography will dictate a circuitous route to accommodate the engineering requirements of the installation equipment and minimize site disturbance. In most locations the ridgeline roads will be screened by existing vegetation on either side of the road and would not be highly visible from outside the

immediate area. The exception is from the viewpoints on Avery Peak and Little Bigelow Mountain, where the ridgeline roads may appear as gray green lines slightly different in color than the surrounding forest vegetation. See Photosimulation 1 (view from Avery Peak) and Photosimulation 2 (view from Little Bigelow Mountain). The surface of the ridgeline road should not be visible from outside the immediate project area. Following installation, the ridgeline roads will be reduced in width to 16 feet.

17.3.4 Access Roads

Access to the project site is proposed by upgrading and extending existing logging roads within the project area. Access to the Project will be off Long Falls Dam Road in Highland Plantation. Access roads will be upgraded to 16± feet in width in most locations to accommodate the cranes, construction vehicles, and delivery trucks used for the turbine components, including limited pullouts for passing of large vehicles. The access road should not be visible to the general public beyond its immediate intersection with Long Falls Dam Road.

17.3.5 Electrical Collection System

The electrical collector system will transfer power from the turbines to the proposed collector substation located north of Witham Mountain. The collector lines will be located underground along the ridgeline to reduce the Project footprint, minimize visibility, and to reduce potential line maintenance costs along the exposed ridges. The approximately 11-mile long 115 kV generator lead will connect the on-site collector station to the existing Wyman Dam substation in Moscow, Maine where power will be transferred to the Central Maine Power Company (CMP) system and ultimately distributed to the New England grid.

17.3.6 Meteorological Towers

The existing meteorological tower is temporary and will be removed during construction. Four permanent 80-meter (262 feet) towers will be constructed 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.

17.3.7 Crane Pads and Crane Assembly Area

A cleared and level pad area approximately 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. In addition, one crane assembly area will be required for crane assembly. Following construction the majority of the crane assembly area will be allowed to naturally revegetate.

17.3.8 Operations and Maintenance Building

An Operations and Maintenance (O&M) building will be constructed approximately 450 feet up the access road on the northeast side of the Long Falls Dam Road in Highland Plantation. The O&M building will consist of a single-story 7,875± SF building that will contain a warehouse and office; a small parking area; and an outdoor storage area for turbine components. 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 would not be visible from Long Falls Dam Road or any scenic resources of state or national significance.

17.3.9 Visual Impact of Associated Facilities

The associated facilities for Highland Wind Project include the access roads, the ridgeline roads the electrical collector line, and the collector substation. The logging road that will be used for project access is off an established highway with many other service drives. None of these associated facilities will be visible from any scenic resource of state or national significance, with the exception of the ridgeline roads as described above. 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.

17.4 PROJECT STUDY AREA

17.4.1 Existing Character of the Surrounding Area

The existing character of the surrounding area is described by its landforms, water resources, vegetative patterns, and cultural character. The potential viewshed within eight miles of the Project is illustrated on Figure 2: Viewshed Map and includes all of Highland Plantation and portions of Pleasant Ridge Plantation, Moscow, Concord Township, Lexington Township, Kingfield, Carrabassett Valley, Dead River Township, Carrying Place Town Township, and Carrying Place Township.

Several of the resources within the statutorily determined eight-mile study area are considered scenic resources of state or national significance. These resources are described in greater detail in Section 17.5 Scenic Resources of State or National Significance.

- *Landform*. The study area is located at the eastern end of the Mahoosuc Rangeley Lakes biophysical region and the western end of the Maine Central Mountains biophysical region.[7] The landforms within eight miles of the proposed project include well-defined mountains and ridges rising up to 3,000± feet above broad valleys (Bigelow Range) and rounded mountains and hills rising up to 1,500 feet above broad undulating valleys (e.g., Stewart Mountain). The tallest mountains within the Bigelow Range in the 8-miles study area are Milton Avery Peak and Little Bigelow Mountain, 7.8 and 3.9 miles respectively, northeast of the Project. Bigelow Mountain is designated as a National Natural Landmark. Bigelow Mountain is considered a scenic resource of state or national significance and is described in greater detail below.

  The Project will be built on two ridgelines, all located below elevation 2,700. The first string will be located on an L-shaped ridge that connects Stewart Mountain (el. 2,671), Witham Mountain (el. 2,299), and Bald Mountain (el. 2,007). The second (eastern) string extends in a relatively straight north-south line from the northeastern end of Burnt Hill (el. 2,236) south to Briggs Hill (el. 1,982±). None of these peaks are considered scenic resources of state or national significance.

- *Water Resources*. The land on the east side of the project site drains to the Kennebec River, which parallels Route 201 throughout its length in the study area. The Kennebec River is 2.8 miles from the closest turbine. The Wyman Hydro Dam in Moscow and topography within Pleasant Ridge Plantation impounds the Kennebec River, forming Wyman Lake. The Maine Rivers Study identifies the Kennebec as a Scenic River, having unique/significant scenic resource values of outstanding statewide significance. However, Wyman Lake is not considered to have scenic resources by Maine Wildlands Lakes Assessment. See Section 17.5E for a description of the Kennebec River and the visual effect of the Project on this scenic resource of state or national significance.

  Most of the land on the west side of the project site drains to the Carrabassett River in Carrabassett Valley and Kingfield and Poplar Stream in Carrabassett Valley and Highland Plantation. Neither one is included in the list of Scenic Rivers in Appendix G of the Maine Rivers Study.

  There are 18 lakes and ponds within the 8-mile study area. These range in size from Flagstaff Lake (20,300 acres) immediately north of the Project, to Lost Pond (18 acres) in Pleasant Ridge Plantation. (See Table 1 Lakes and Ponds within 8 miles of the Highland Wind Project.) Three waterbodies are rated for their scenic resources by the Maine Wildlands Lakes Assessment) and are considered scenic resources of state or national significance. See Section 17.5D for a description of these resources and the potential visual effect of the Project.

[7] 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.

- **Flagstaff Lake** (an accessible, undeveloped, man-made lake 2.7 miles north of the Project) has significant scenic resources. Views of the Project will occur at the southeastern end of the lake.
- **Jackson Pond** (an accessible undeveloped pond 5.9 miles southeast of the project in Concord Township) has outstanding scenic resources. Views of the Project will be blocked by intervening topography.
- **Gilman Pond** (an accessible undeveloped pond 6.1 miles south of the Project in Lexington Township) has significant scenic resources. Views of the project will occur throughout most of the pond.

The study area is drained by a multitude of small streams that lead to the larger rivers. The Maine Atlas and Gazetteer[8] lists two scenic waterfalls within the eight-mile study area: Houston Brook Falls, near the southwestern end of Wyman Lake in Pleasant Ridge Plantation, and Poplar Stream Falls in Carrabassett Valley. Both falls are located in dense woods and will have no visual contact with the turbines. The 115-kV generator lead that connects the on-site collector station with the existing Wyman Dam substation would pass within 0.6 mile of Houston Brook Falls and be screened by existing vegetation.

- *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 privately owned and has been harvested for timber production. Extensive areas of recent cutting activity are visible on the northwestern face of Stewart Mountain (see Photograph P10 in Appendix A).

Table 1. Lakes and Ponds within 8 miles of the Highland Wind Project

LAKE/ POND	LOCATION	DIST	SIZE	ACCESS	DEV	RES CLASS	SCENIC RATING	TURBINES VISIBLE
Flagstaff Lake	Dead River TWP	2.7 miles	20,300 acres	AC	UNDEV	1A	S	8 – 15 on Stewart Mt.
West Carry Pond	Carrying Place Town TWP	2.8 miles	675 acres	AC	DEV	1A		Dam: 7; midlake: 34 Arnd. Pt.: 19
Middle Carry Pond	Carrying Place Town TWP	4.4 miles	126	AC	DEV	2		No. end: 7 So. end: 0
East Carry Pond	Carrying Place Town TWP	5.3 miles	267	AC	DEV	1B		Mid. and no. end: 11 – 28
Wyman Lake	Pleasant Ridge PLT	3.0 miles	3,146	AC		2		6 – 23 at so. end
Lost Pond	Pleasant Ridge PLT	3.6 miles	18	INAC	UNDEV	2		0
Rowe Pond	Pleasant Ridge PLT	1.8 miles	205	AC	UNDEV	2		Tops of 7 – 10
Bean Pond	Pleasant Ridge PLT	2.6 miles	20	INAC	UNDEV	2		Tops of 4±
Jewett Pond	Pleasant Ridge PLT	2.4 miles	32	AC	UNDEV	3		Tops of 2 – 4
Clear (Mill) Pond	Pleasant Ridge PLT	1.6 miles	23	AC	UNDEV	2		0
Jackson Pond	Concord TWP	5.9 miles	32	AC	UNDEV	1B	O	0
Embden Pond	Embden	6.9 miles	1,568	AC	DEV	1B		Tops of 2±
Hancock Pond	Embden	6.3 miles		AC	DEV			0

[8] Maine Atlas and Gazetteer, 27th Edition. DeLorme, Yarmouth, Maine.

LAKE/ POND	LOCATION	DIST	SIZE	ACCESS	DEV	RES CLASS	SCENIC RATING	TURBINES VISIBLE
Gilman Pond	Lexington TWP	6.1 miles	242	AC	UNDEV	1B	S	8 – 24
Spruce Pond	Lexington TWP	2.2 miles	49	AC	UNDEV	2		0
Safford Pond	Lexington TWP	5.7 miles	40	INAC?	UNDEV	1B		6 – 9±
Indian Pond	Lexington TWP	6.9 miles	53	INAC?	UNDEV	2		0
Butler Pond	Lexington TWP	5.6 miles	28	INAC	UNDEV	2		0

DIST: Distance to the nearest turbine. AC: Accessible. INAC: Inaccessible. DEV: Developed. UNDEV: Undeveloped. RES CLASS: 1A: Lakes of Statewide significance with multiple outstanding natural values. 1B: Lakes of Statewide significance with a single outstanding natural value. 2: Lakes of regional significance (no outstanding values but at least one significant resource value). 3: Lakes of local or unknown significance. SCENIC RATING: S: Significant O: Outstanding. TURBINES VISIBLE: The approximate number of turbines within eight miles that may be visible from the lake/pond.

In addition to the Bigelow Preserve, the Bureau of Parks and Lands (BPL) owns a number of smaller woodlots in the Flagstaff region, managed primarily for timber production and secondarily for wildlife and recreation. BPL owns five lots in Highland Plantation and one in Pleasant Ridge Plantation: a two-parcel Double lot (300 acres) southwest of Witham Mountain; the Southeast or Oak lot (125 acres) on the western slope of Briggs Hill; the West or Long Falls Dam lot (325 acres) on the western slope of Stewart Mountain; a lot on the north side of Burnt Hill; and a lot in the southwestern corner of Pleasant Ridge PLT. Both of the last two lots are considered outside the Flagstaff region by BPL.[9] None of these properties are considered to be scenic resources.

- *Cultural character.* Cultural features within eight miles of the project include:

  – **Town centers** of Moscow and Bingham on the Kennebec River, 6± miles east of the nearest turbines on Briggs Hill. The town center of Carrabassett Valley, 4.5 miles west of the nearest turbines on Stewart Mountain. The Project should be blocked by vegetation and intervening topography and should not be visible from any of these town centers. The only property listed on the National Register of Historic Places is the Bingham Free Meetinghouse in Bingham, which will not have a view of the wind turbines or associated facilities due to intervening topography and vegetation.

  – **Small villages** of Pleasant Ridge, Lexington, and North New Portland. The Project should be blocked by vegetation and intervening topography in most of these villages. The exception is in Lexington, where Long Falls Dam Road is oriented in a northerly direction toward the Project on Witham Mountain. Several turbines would be visible to northbound motorists over approximately 5.7 miles of the road, with the closest view at 2.2 miles.

  – **Lakeside cottages** are found on Flagstaff Lake, West Carry Pond, Middle Carry Pond, East Carry Pond, Embden Pond, Jewett Pond, Rowe Pond, and Gilman Pond. The majority of these cottages are not oriented toward the Project and will not have views of the turbines. The largest concentration of homes (several hundred) is found on the Carry Ponds, which are only accessible through a gated private road network.

[9] Flagstaff Region Management Plan, Maine Department of Conservation, Bureau of Parks and Lands, June 12, 2007.

– **Very low density rural residential development**, found throughout the study area. The closest residences that may have views of the turbines are approximately 1.5 miles to the south on Sandy Stream Valley Road in Highland Plantation.

– **Recreational areas** include a small beach and boat launch on the southeastern end of Flagstaff Lake in Dead River Township; boat launches and other facilities on Wyman Lake (see Scenic Byways below); informal boat launches on Rowe Pond and Clear Pond in Pleasant Ridge Plantation; campgrounds and primitive campsites on Flagstaff Lake; primitive campsites (landowner permission required) in Highland Plantation, at Jewett Pond in Pleasant Ridge Plantation and Carrying Place Township; and Baker Mountain Ski Area in Moscow.

– **Scenic Byways**: There are two designated Scenic Byways within eight miles of the Project. Old Canada Road Scenic Byway is designated as both a Maine State Scenic Byway and a National Scenic Byway.[10] The 78.2 mile-long Byway follows the Kennebec River on the eastern edge of the study area. This section of Route 201 is also part of the Kennebec-Chaudiere Heritage Corridor, which links Fort Popham on the south with the City of Quebec on the north. Approximately 16.9 miles of Route 201 is within 8 miles of the Project. Approximately 22 turbines will be periodically visible to the west over Wyman Lake at a distance of approximately 4.5 miles for approximately 0.3± miles of the Byway. There are no pulloffs or rest stops within the 0.3 mile length of road where the project is visible.

  The Wyman Lake Rest Area on Route 201, located 0.2 mile south of the Moscow/Caratunk town line, is 5 miles from the Project. None of the turbines will be visible due to intervening topography and vegetation. There are several informal pulloffs along Route 201 in Moscow where gaps in the guardrails allow space for visitors to park. None of these pulloffs are signed by MDOT and none will have views of the Project due to intervening topography and vegetation.

  The Route 27 Scenic Byway (State designation) parallels the Carrabassett River on the west side of the Project area, and extends from Kingfield to the Canadian Border in Coburn Gore. At its closest point, the Byway would be approximately 4 miles from the nearest turbines. However, a series of low mountains (Little Poplar Mountain, Poplar Mountain, Clay Brook Mountain, Ira Mountain, and Vose Mountain) that parallel the Carrabassett River should block all views of the Project from the Byway and the scenic overlook between Kingfield and Carrabassett Valley.

  There are no scenic resources of state or national significance along the scenic byways that will have a view of the Project.

– **Designated Hiking Trails:** The study area is well known for its abundance of hiking trails, focused on the Bigelow Range. The most well-known is the Appalachian National Scenic Trail, a unit of the National Park System, extending 2,175 miles from Mount Katahdin in Maine to Springer Mountain in Georgia. Approximately 18.9 miles of the trail are located within the Project study area. In the Bigelow Range the trail crosses Milton Avery Peak and Little Bigelow Mountain, where there will be views of the Project. The Appalachian Trail is a scenic resource of state or national significance and is described in greater detail in Section 17.5F below.

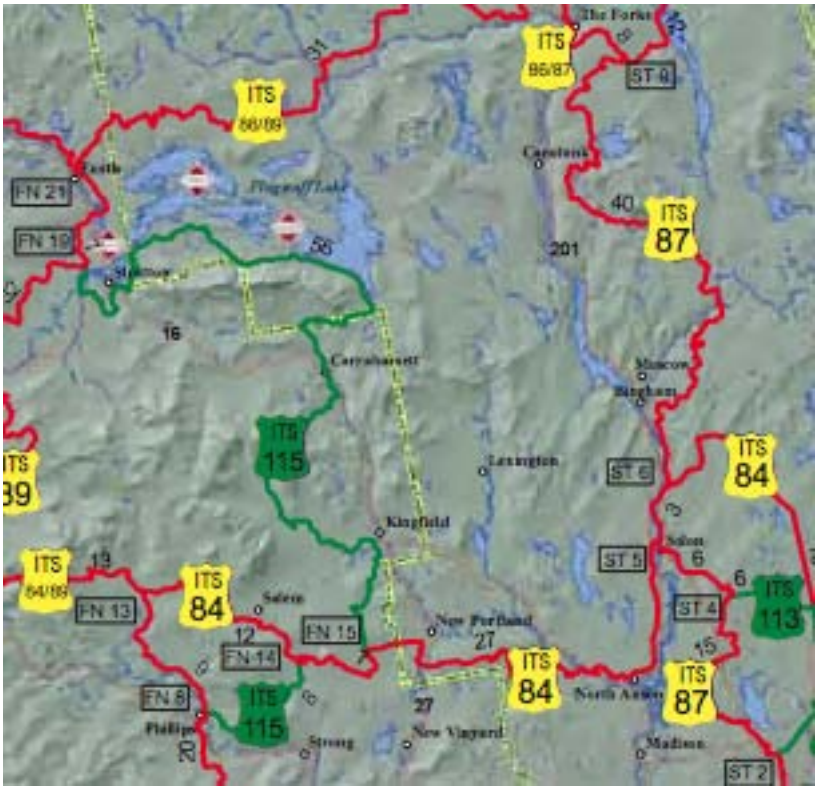
[10] The National Scenic Byways Program is part of the U.S. Department of Transportation, Federal Highway Administration. The program is a grass-roots collaborative effort established to help recognize, preserve and enhance selected roads throughout the United States. The U.S. Secretary of Transportation recognizes certain roads as All-American Roads or National Scenic Byways based on one or more archeological, cultural, historic, natural, recreational and scenic qualities. http://www.byways.org/

The Western Mountain Foundation operates Maine Huts and Trails, a 180-mile trail and hut system extending from the Bethel area on the west to the Moosehead Lake area. While portions of the trail are located within the eight-mile study area, there should be very little visual contact with the Project since the trails generally are located on rolling to level terrain through wooded areas avoiding the mountains. One of their huts is located on private property on the eastern end of Flagstaff Lake, approximately 2.0 miles southeast of Long Falls dam in Carrying Place Township. A second hut is located at Poplar Falls on the north side of Little Poplar Mountain in Carrabassett Valley. The turbines should not be visible from the huts, which are located in wooded sites and well screened from scenic resources.

– **Designated snowmobile trails** throughout the study area include ITS (Interconnected Trail System) 115, which is located on the north and east side of the Bigelow Range, and ITS 87, located on the east side of the Kennebec River. Snowmobiling and ATV riding are both very popular activities throughout the study area, with concentrations of activity in Stratton and Rangeley. There are no designated snowmobile trails within the Project boundary. The existing ITS routes are generally located in the valleys and should have minimal visual contact with the Project. See Figure 4, ITS Snowmobile Routes Near the Highland Wind Project. While snowmobile / ATV trails are not considered scenic resources of state or national significance, some of the local trails may cross Flagstaff Lake and Gilman Pond, both of which are scenic resources of state or national significance.

Photographs of these cultural resources are provided in Appendix A: Study Area Photographs. There are no existing structures in the Project site other than a temporary meteorological tower erected by Highland Wind LLC.

Figure 4: ITS Snowmobile Routes Near the Highland Wind Project



17.4.2 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.[11] The distance zones used for the study of the Highland Wind Project are defined as the following.

- *Foreground: 0 to 1/2 mile in distance.* Within the foreground, the observer would be able to detect surface textures, details, and a full spectrum of color. For example, the details of the turbines (blades, nacelles, support towers) would 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 4 miles in distance*. The midground is a critical part of the natural landscape. 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.

[11] USDA Forest Service, *Landscape Aesthetics: A Handbook for Scenery Management,* Agricultural Handbook Number 701. December 1995.

Scenic resources of state or national significance within the midground include the eastern end of Little Bigelow Mountain, portions of the Kennebec River (Wyman Lake), portions of Flagstaff Lake, and portions of the Bigelow Preserve.

- *Background: between 4 and 8 miles*[12]. 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 haze will obliterate the surface textures, detailing, and form of project components. Objects seen at this distance will be highly visible if they present a noticeable contrast in form or line and weather conditions are favorable. Due to the thinness of the design, the ends of the turbine blades will be minimally visible at distances greater than eight miles. Scenic resources of state or national significance with background views of the Highland Wind Project include Myron Avery Peak, the Bigelow Preserve, portions of the Appalachian Trail on Bigelow Mountain, portions of Flagstaff Lake, and Gilman Pond.

17.5 VISUAL IMPACTS ON SCENIC RESOURCES OF STATE OR NATIONAL SIGNIFICANCE

As noted in Section 17.5, there are several scenic resources of state or national significance within eight miles of the Project. The following section evaluates each of these areas, 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, the viewshed analysis, and the photosimulations. The review examined the factors of color, form, line, texture, scale, and dominance, following the format established by Richard Smardon and James Palmer in Foundations for Visual Project Analysis, the standard reference for visual analysis.[13] This methodology also follows Maine DEP's Chapter 315 Regulations: *Assessing Impacts to Existing Scenic and Aesthetics Uses under the Natural Resources Protection Act*.[14]

[12] 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.)

[13] Smardon, Richard C., James F. Palmer, and John P. Felleman. *Foundations for Visual Project Analysis*. John Wiley & Sons. New York. 1986.

[14] Maine Department of Environmental Protection. Guidance for *Assessing Impacts to Existing Scenic and Aesthetics Uses under the Natural Resources Protection Act.* Augusta. 2003.

The results of the analysis for the views from Little Bigelow Mountain and Avery Peak are presented in Figures 6 and 7 respectively.

17.5A. A national natural landmark, federally designated wilderness area or other comparable outstanding natural and cultural feature, such as the Orono Bog or Meddybemps Heath.

Bigelow Preserve / Bigelow Mountain National Natural Landmark

Context. The Bigelow Preserve is a Maine Public Reserved Land[15] administered by the Maine Department of Conservation. The Bigelow Preserve includes over 36,000 acres of public land and encompasses the entire Bigelow Range, which extends from Stratton on the west to Flagstaff Lake on the east. The highest mountain in the range is West Peak (el. 4,145 foot), one of only ten Maine summits over 4,000 feet in elevation.[16] Two of the major peaks in the Bigelow Range are within eight miles of the Highland Wind Project.

The Bigelow Preserve was established by a citizen-initiated referendum in 1976 to acquire the Bigelow range in the face of a planned recreation development that would have transformed the mountains and portion of Flagstaff Lake into the "Aspen of the East." The Bigelow Act – "An Act to Establish a Public Preserve in the Bigelow Mountain Area" – mandated the State to "set aside land to be retained in its

Table 2: Mountains in the Bigelow Range

MOUNTAIN	ELEVATION	DISTANCE TO NEAR TURBINE	DISTANCE TO FAR TURBINE	TURBINES W/IN 8 MILES[17]
Little Bigelow Mountain	3,040'	4.3 miles (eastern end of ridge)	11.3 miles	24
Milton Avery Peak	4,088'	7.7 miles	14.1 miles	6
West Peak	4,145'	8.3 miles	14.8 miles	0
The Horns (N/S)	3,792; 3,805'	10.1 miles	16.4 miles	0
Cranberry Peak	2,982'	12.7 miles	18.9 miles	0

natural state for the use and enjoyment of the public." The Bigelow Preserve was established to protect the Bigelow Range from development, to maintain the visual quality *of* the mountain and the 34,934-acre Preserve that surrounds it, to provide a semi-remote environment for the people of Maine, and to protect important and fragile habitats from being destroyed. The Bureau of Public Lands manages the land to protect the views of the mountain range as well as the views of state land looking down from the mountains over the Preserve.

In 2007 the Bureau of Parks and Lands issued the Flagstaff Region Management Plan, a 15-year to plan to "provide a balanced spectrum of opportunities across the Flagstaff Region, in keeping with the opportunities and resources available in the broader surrounding Western Mountains Region." The Plan recognizes the significance of visual management in planning for timber and other management activities within the Preserve to "retain the appearance of an undisturbed forest when viewed from hiking trails."

[15] Maine's Public Reserved Lands total more than a half million acres of wild lands and are managed for a variety of resource values including recreation, wildlife, and timber. Public reserved land units are not staffed as state park or historic sites. The Public Reserved Lands are managed for multiple-uses under a "dominant use" system that ensures that sensitive resources such as rare plants and backcountry recreation areas are not disturbed by more intensive management activities. There are 29 "units" of Public Reserved Lands ranging in size from 500 to more than 43,000 acres and many other smaller scattered lots. www.maine.gov/doc/parks/programs/prl.html

[16] www.maine.gov/cgi-bin/online/doc/parksearch/details.pl?park_id=42.

[17] Additional turbines would be visible from these viewpoints, However, the Maine Legislature has determined that "the primary siting authority (in this case the Land Use Regulation Commission) 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 Evaluation Criteria.)

However, the Plan does not prescribe any restrictions on management activities on non-state land outside of the Preserve.[18]

In 1975 the United States Department of the Interior established Bigelow Mountain as a National Natural Landmark (NNL) in recognition of the extensive and varied alpine communities found at the summit.[19] The Program describes Bigelow Mountain as "one of the best and most representative alpine vegetation zones among lower elevation New England Mountains." Bigelow is one of 14 NNL's in Maine.

Significance. The NNL website notes that "in terms of size, condition and lack of disturbance, Bigelow Mountain possesses one of the best alpine vegetation zones among New England's 4,000-foot peaks. It is exceptionally scenic and wild, with some of the best summit views in the eastern United States." The Maine Wildlands Lakes Assessment notes that Flagstaff Lake has significant scenic resources, primarily the dramatic views of the Bigelow Range that parallel the southern end of the lake.

Public Uses. The Bigelow Preserve offers a wide range of activities for public recreation, including hiking, snowmobiling, hunting, cross-country skiing, camping, fishing, and boating. The Bigelow Preserve is considered a backcountry recreation area rather than a wilderness area. Additional information about the Appalachian Trail is provided in 6F below.

Viewer Expectations. People who recreate in the Bigelow Preserve are expected to have high expectations of scenic quality, given the history of the Preserve and the dramatic combination of mountain and lake scenery. Their expectations may be tempered by the presence of four-season development in Carrabassett Valley that is visible from the higher elevations. This includes Sugarloaf ski area, Sugarloaf golf course, Sugarloaf Regional Airport, and development along Route 27.

Project Impact. Due to the wooded nature of the majority of the Bigelow Preserve, the Highland Wind Project turbines should only be visible within eight miles from two of the peaks in the Bigelow Range: Avery Peak and Little Bigelow Mountain. A description of project impacts from these peaks is provided in 5F below.

Potential Effect on Public Use. The Highland Wind Project will introduce large-scale man-made elements in a largely natural landscape. However, from most parts of the Bigelow Preserve (with the exception of the ridgeline on Avery Peak and Little Bigelow), the turbines will not be visible within eight miles. The Project will not be visible from the existing campsites within the Preserve, snowmobile trails, the Bigelow Lodge, or most of the hiking trails. The Project should have a relatively minor impact on the public's continued use and enjoyment of the Bigelow Preserve. See 6F below for a discussion on the impact on the Appalachian Trail in the Bigelow Preserve.

Conclusion. The Highland Wind Project should not significantly compromise views from the Bigelow Preserve. The Project should not have an unreasonable adverse effect on its scenic character or the uses related to the scenic character of the Preserve. See 5F below for conclusions regarding the impact on the Appalachian Trail.

[18] Flagstaff Region Management Plan, Maine Department of Conservation, Bureau of Parks and Lands, June 12, 2007.

[19] National natural landmarks (NNL) are natural areas that have been designated by the Secretary of the Interior to recognize some of the best biological or geological resources in the nation. The goals of the NNL Program are to "encourage the preservation of sites illustrating the geological and ecological character of the United States, to enhance the scientific and educational value of sites thus preserved, to strengthen public appreciation of natural history, and to foster a greater concern for the conservation of the nation's natural heritage." www.nature.nps.gov/nnl/NNL_FAQ.cfm#4

17.5B. 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 are two properties on the National Register of Historic Places within eight miles of the Project area: the Arnold Trail to Quebec, north of the Project area, and the Bingham Free Meetinghouse in Bingham, 6.2± miles east of the nearest turbine on Briggs Hill.[20] The Bingham Free Meetinghouse will not have a view of the wind turbines or associated facilities due to intervening topography and vegetation.

Context. The Arnold Trail is the route that Benedict Arnold took in 1775 in an ill-fated attempt to attack Quebec during the Revolutionary War. According to the National Register nomination form,[21] the trail is 194 miles long, stretching from Fort Popham at the mouth of the Kennebec River to Coburn Gore on the Canadian Border. The exact location and condition of the trail is unknown throughout the project area. Different map sources that were examined indicate considerable uncertainty in its location.[22]

The Appalachian Trail follows the southern shoreline of West Carry Pond for approximately 1.3 miles to the point, then turns east toward Middle Carry Pond. Neither the Arnold Trail nor the Appalachian Trail extends out to Arnolds Point on West Carry Pond.

Significance. Arnold Trail has a great deal of significance in the Revolutionary War. According to the Flagstaff Area Management Plan, the Maine Historic Preservation Commission has filed an application to have the trail included in the American Battlefield Protection Program (a program of the National Park Service) to provide additional protections along the corridor. Maine's Finest Lakes notes that West Carry Pond is "considered an outstanding cultural site. It is where the Benedict Arnold expedition set up a field hospital on their march to Quebec."[23] No significant scenic features were reported in Maine's Finest Lakes.

Public Uses. There is little to no regular public use of the Arnold Trail per se. There are no markers in the field that indicate the route of the Arnold Expedition or guidemaps to direct visitors to the site.

Viewer Expectations. There is little evidence of regular public visitation to the area where the trail is presumed to be located.

Project Impact. While sections of the trail between East Carry, Middle Carry, and West Carry Ponds are within the viewshed of the Highland Wind Project, the surface of the ponds and Sandy Stream are the only places along the route (as indicated on the map that accompanies the National Register application) where the turbines would be visible. The majority of the trail appears to be in woodland with little or no views of the Project.

Arnolds Point, a quarter-mile long spit at the southern end of West Carry Pond, is 3.4± miles northeast of the nearest turbine on Stewart Mountain. A total of 19 turbines within 8 miles would be visible from Arnolds Point (of these, 9± would be visible on Stewart Mountain; the others would be partially blocked by topography and vegetation and would only be partially visible on the horizon); 7 turbines within 8 miles would be visible at the dam at the northern end of the lake; 34 turbines within 8 miles would be visible at the midpoint of West Carry Pond. Photosimulation 4 is a view from West Carry Pond from a location on the water near Arnolds Point. It shows how vegetation and topography would screen the bases of half of the turbines.

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[20] The area covered by the PALS Highland Historic Architectural Reconnaissance Survey extends out to a radius of five miles.

[21] National Register of Historic Places, Inventory – Nomination Form, Arnold Trail to Quebec. Maine State Park and Recreation Commission. July 14, 1969.

[22] TJD&A examined maps from the NRHP Nomination Form; the Flagstaff Region Management Plan, and an electronic map from the Arnold Expedition Historical Society at http://arnoldsmarch.com/.

[23] The electronic map from the Arnold Expedition Historical Society shows "the location of a log hut built to provide for men who were sick and unable to continue" on East Carry Pond.

Potential Effect on Public Use. The Project should have little to no impact on the public's continued use and enjoyment of the Arnold Trail.

Conclusion. The Highland Wind Project should not significantly compromise views from the Arnold Trail. The Project should not have an unreasonable adverse effect on its scenic character or the uses related to the scenic character of the trail.

17.5C. National or State Parks

There are no state parks within eight miles of the project. The closest is Rangeley Lakes State Park in Rangeley, approximately 31 miles to the west. The Bigelow Preserve (a Maine Public Reserved Land) is administered by the Bureau of Parks and Lands and is described in 5A above and 5F below.

The closest unit of the National Park Service is the Appalachian National Scenic Trail (AT), which is described in 5F below. Acadia National Park, which is over 90 miles southeast of the Highland Wind Project, is well beyond the viewshed of the Project.

5D. A great pond that is:

(1) One of the 66 great ponds located in the State's organized area is 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."

There are three lakes and ponds within the study area that have significant or outstanding scenic resources: Flagstaff Lake, Gilman Pond, and Jackson Pond. The Viewshed Map (Figure 2) has shown that the Project will not be visible from Jackson Pond (outstanding scenic resources).

Flagstaff Lake

Context. Flagstaff Lake (20,300 acres), 2.7 miles north of the Project, is the largest waterbody in the study area (and fourth largest in the state). Flagstaff Lake was created in 1950 by Central Maine Power by the construction of Long Falls dam on the Dead River. The lake was designed for both hydropower generation and regulating waterflow from the Dead River into the Kennebec River basin.

Flagstaff is subject to seasonal lake level fluctuations, which can range as much as 35 feet. In late spring the lake is at maximum levels. It typically is drawn down 10 to 15 feet in the fall and 20 to 25 feet in the spring in anticipation of runoff from the snowmelt. When fully drawn down, the lake area is reduced from 20,300 acres to approximately 6,000 acres.

Flagstaff Lake is part of the Northern Forest Canoe Trail (NFCT),[24] a 740-mile long-distance paddling trail connecting major watersheds in New York, Vermont, Quebec, New Hampshire, and Maine. Near the study area, the route follows the South Branch of the Dead River, crosses Flagstaff Lake to Long Falls Dam, and then continues north on the Dead River. It is expected that most users will paddle downstream and cross Flagstaff Lake west to east and stay close to the northern shoreline, away from the windy central part of the lake. Canoeists may be able to see a residential-scaled wind turbine for the Flagstaff Lake Hut, part of the Maine Huts and Trails System, located on the eastern end of Flagstaff Lake. See Figure 3a–3d for the location of all trails and recreation facilities within the study area.

Significance. The Maine Wildlands Lakes Assessment notes that the lake has significant scenic resources, primarily the dramatic views of the Bigelow Range that parallel the southern end of the lake. The LURC Comprehensive Land Use Plan (CLUP) assigns Flagstaff Lake to Management Class 2 (especially high value, accessible, undeveloped lakes). The criteria for this designation is accessible to

[24] http://northernforestcanoetrail.org/ While the NFCT received start-up funding from the National Park Service, it is managed as a private non-profit organization.

within 1/4 mile by 2 wheel drive vehicles; less than 1 development unit per mile of shoreline, two or more outstanding resource values in fisheries, wildlife, scenic, or shore character.[25]

Public Uses. Recreational use of the lake include boating, fishing, swimming, snowmobiling, camping, and seasonal camps. The use of the lake is limited by strong winds, relatively shallow water depths, annual drawdowns, and the appearance of the shoreline during drawdown conditions.

Boaters/Anglers. Boat access to the lake is limited to a hand-carry site at Round Barn, and trailable boat launches in Stratton, Bog Brook, and at Long Falls Dam.

Camping opportunities at the east end of Flagstaff Lake include a drive-to campground at Round Barn (9 individual sites and one group site) and four primitive sites on the eastern shoreline near Long Falls dam. The Flagstaff Region Management Plan recommends several new walk-to campsites on the eastern shore of the lake near Bog Brook to meet the demands associated with the Appalachian Trail. The Viewshed Map (Figure 2) indicates that the Project would not be visible from these sites.

Seasonal Camps are concentrated in three general locations on Flagstaff Lake:

- Bog Brook. Approximately two dozen camps on Flagstaff Lake are located on inholdings in the Bigelow Preserve around a cove at the southeastern end of the lake. The majority of the properties, which would be 2.6± miles from the nearest turbine, are heavily wooded and do not have views beyond the foreground.
- Long Falls (Flagstaff Lake) Dam. There are several homes near the end of Long Falls Dam Road just east of the dam, situated to take advantage of the view toward Flagstaff Lake and the Bigelow Range. Only one turbine would be within 8 miles of these camps and would appear as a very small object in the landscape.
- Safford Brook / Round Barn area. Several camps and other structures (including the Bigelow Lodge) are located in the woods near the shoreline. These buildings are generally oriented to the north, toward the lake, and would not have views of the turbines, which would be 6.1± miles away. Existing vegetation should block views of the Project from this area.

Viewer Expectations. People who use Flagstaff Lake are expected to have moderate to high expectations of scenic quality, given the history of the Bigelow Preserve and the dramatic combination of mountain and lake scenery, but tempered by the fluctuating lake levels and the amount of exposed shoreline.

Project Impact. The viewshed map indicates that between 8 and 15 turbines on Stewart Mountain would be visible above the horizon at the eastern end of Flagstaff Lake at distances of 2.7 to 8 miles. Between one and 15 turbines will be visible over approximately 31% of the lake at high water level, primarily as background views. The turbines on Stewart Mountain will be visible in the midground (within 4 miles) from 330 acres of the lake (1.6% of the total surface area) in the small inlet near Bog Brook. During times when the lake is drawn down, the area within the midground where the turbines would be visible would decrease significantly. See Photosimulation 3 for a midground view of the Project from a cove opposite Bog Brook at the southeastern end of Flagstaff Lake, where up to 15 turbines would be visible at high water level.

Paddlers may see the top portions of several turbines as they pass the Round Barn campsite at Safford Brook, 8 miles from the Project. View of the Project would continue for another 2.5 miles as the paddler

[25] "The Commission intends to conserve the special values of these lakes by significantly restricting the density and intensity of development to one development unit per mile of shoreline. These restrictions will be applied to the area within 500 feet of the lakeshore to enable the Commission to regulate back lot development which could affect the lake's special values and is consistent with the management intent of the lake. Variation of density requirements may only be sought as part of a concept plan which is demonstrated by clear and convincing evidence to be fully protective of the special values associated with the lake." Comprehensive Land Use Plan for Areas Within the Jurisdiction of the Maine Land Use Regulation Commission. Department of Conservation. Revised 1997.

approaches the peninsula in Dead River TWP opposite Bog Brook. At that point, approximately 15 turbines may be visible, with the closest turbine 5.7 miles away. Once the tip of land is passed, the route turns north and heads toward Long Falls Dam, away from the Project, and the turbines would be out of sight.

The majority of the campsites and summer camps are heavily wooded and do not have views beyond the foreground.

The red warning lights on several of the turbines will be visible from the camps near Long Falls Dam at a distance of 8± miles.

The 8-15 turbines on Stewart Mountain would be perceived as significant objects in a very large-scale landscape, especially from background viewing distances (greater than 4 miles). From most viewing locations the turbines should appear to be subordinate to the adjacent Bigelow Range and the lower mountains that they would be located on.

Potential Effect on Public Use. The views of 8 to 15 turbines on Stewart Mountain will change the character of the eastern end of Flagstaff Lake by introducing man-made elements in a landscape that is perceived as natural (even though the lake itself is artificial). The turbines will not interfere with views of the Bigelow Range, which is the primary focal point of the region. The Project will not be visible from the majority of the existing campsites or any of the campsites that have been proposed on the lake. Midground views of the turbines will be limited to the small cove near Bog Brook. The Project should have a relatively minor impact on the public's continued use and enjoyment of Flagstaff Lake.

Conclusion. The Highland Wind Project should not significantly compromise views from Flagstaff Lake. The Project should not have an unreasonable adverse effect on its scenic character or the uses related to the scenic character of the lake.

Gilman Pond

Context. Gilman Pond is an accessible undeveloped[26] pond 6.1 miles south of the Project in Lexington Township (LURC jurisdiction) and New Portland DEP jurisdiction). The 1.4-mile long pond is at the southern end of a 6-mile long, 1-2-mile wide valley drained by Sandy Stream. Gilman Pond Mountain (el. 1400) is on the west side of the pond; Goodrich Hill (el. 1040) is on the east side. These two landforms frame the view of Peaked Hill (el. 1867), Bald Mountain (el. 2007), and Witham Mountain (el. 2299), which rise 1,400 to 1,900 feet above the valley to the north. A group of a dozen cottages are located on its western shoreline.

Significance. The Maine Wildlands Lakes Assessment notes that the lake has significant scenic resources. Gilman Pond is included in LURC Management Class 7.[27]

[26] Gilman Lake is described as Undeveloped and Accessible. However, there are over a dozen homes and seasonal cottages located at the southern end of the pond. While there are gravel roads that lead to these cottages, they are private and gated, with no apparent public access to the waterbody. There is no public boat landing on the pond.

[27] "Management Class 7 consists of all lakes not otherwise classified, including many lakes which have multiple outstanding or significant resource values identified in the Wildland Lakes Assessment. The Commission will manage these lakes for multiple use, 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." LURC Comprehensive Land Use Plan. 1997.

Public Uses. Recreational use of the lake includes boating, fishing, swimming, snowmobiling, camping, and seasonal camps.[28]

Boaters/Anglers. People who boat on and fish in the lakes surrounding the project area are expected to have relatively high expectations of scenic quality.

A dozen± summer cottages are located on the wooded shoreline. The majority are located on the west side of the pond, oriented to the east toward Goodrich Hill and Hackett Hill, and ninety degrees from the Project. The Project would generally not be within the focal point of most of these camps per se, since the turbines would be ninety degrees to the north and blocked by vegetation along the shoreline.

Viewer Expectations. People who use Gilman Pond for boating, camping, and summer camps are expected to have high expectations of scenic quality.

Project Impact. The turbines on the horizon would be highly visible in the background viewing distance from most locations on Gilman Pond. The closest turbine (on Briggs Hill) would be 6.7 miles away from the nearest cottage; a total of 12 turbines within the eight-mile study area may be visible in the vicinity of this cottage. From the north end of the lake, 24 turbines would be within 8 miles of an observer; at the southern end, the view would include 8 turbines within 8 miles. The string of turbines would be perceived as a significant object in the larger landscape, due to their extent over several ridges. The 400-foot tall turbines will be subordinate to the 1,800-foot mountains that they would be located on. The red warning lights on turbines will be visible from the camps of 6.7 to 8± miles. See Photosimulation 6 for a view of the Project from the southern end of Gilman Pond.

Potential Effect on Public Use. The Project should have a relatively minor impact on the public's continued use and enjoyment of Gilman Pond. While the turbines will be visible from the majority of the pond, users will still be able to enjoy the same type of recreational activities they now participate in.

Conclusion. The Highland Wind Project should not significantly compromise views from Gilman Pond. The Project should not have an unreasonable adverse effect on its scenic character or the uses related to the scenic character of the pond.

17.5E. 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."

The Kennebec River is the only river that qualifies as a scenic resource of statewide or national significance within the study area.

Context. The Kennebec River, one of the largest rivers in the State, parallels Route 201 on the east side of the study area. The river is largely undeveloped in this section, with sloping wooded banks. The Wyman Hydro Dam in Moscow and Pleasant Ridge Plantation impounds the Kennebec River, forming the 15±-mile long Wyman Lake. The dam was built for power generation (Wyman Station) and for log driving. Route 201 is designated as a National Scenic Byway and is part of the Kennebec-Chaudiere Heritage Corridor.

Significance. The 87-mile segment of the Kennebec River between Augusta to The Forks is noted in Appendix G of the Maine Rivers Study as a Scenic River, which means that it has unique/significant scenic resource values of outstanding statewide significance.[29] The 45-mile segment of the Kennebec

[28] Gilman Pond is described as "a delightful little out-of-the-way pond in the Rangeley Lakes region. Nestled into a valley surrounded by forested hills, this picturesque pond offers the opportunity for several hours of quiet paddling, especially if you paddle all the way down to Route 16…The fact that it has a good flow of water but is choked with impenetrable sedges indicates that boats do not ply these waters in great numbers." From www.trails.com/tcatalog_trail.aspx?trailid=CGN022-052

[29] In addition, the Maine Rivers Study also identifies this segment of the Kennebec River as having unique / significant geologic/hydrologic, critical/ecologic, inland fishery, canoe touring, and historic resource values.

River between Madison and The Forks is rated as a "B" River in the Maine Rivers Study, which means that it has a composite of natural and recreational resource values with outstanding statewide significance. While the Maine Rivers Study notes that the Kennebec River has significant scenic resources, the Maine Wildlands Lakes Assessment does not consider Wyman Lake to have significant or outstanding scenic resources.

Public Uses. There are two Department of Conservation boat launches on the Kennebec River off Route 201 within 8 miles of the Project: the Moscow Boat Launch located 1.9 miles south of the Moscow/Caratunk town line, and the Caratunk Boat Launch 4.4 miles north of the Moscow/Caratunk town line. These areas are also used for swimming and picnicking, and afford open views of the lake. Florida Power and Light's Wyman Lake Recreation Area in Pleasant Ridge Plantation provides facilities for swimming, picnicking, and boating. None of these facilities will have views of the Project.

Viewer Expectations. People who use Wyman Lake for boating, fishing, and swimming are expected to have moderate to high expectation of scenic quality, tempered by the presence of Route 201 immediately adjacent to it.

Project Impact. The viewshed analysis indicates that the Project would be visible from approximately 2.8 miles of the Kennebec River on Wyman Lake, immediately upstream from the Wyman Dam. The number of turbines that would be seen varies from approximately 6 near the dam to 22 in an area approximately 0.5 miles long 2.5 miles northwest of the dam. In most other locations turbines would be screened from view by intervening topography and streamside vegetation. The Project will not be visible from either boat launch due to intervening topography and vegetation. It would also not be visible below Wyman Dam. See Appendix A: Study Area Photographs for representative views of Route 201 and Photosimulation 5 for an illustration of the Project as seen from Route 201.

Potential Effect on Public Use. The Project should have a relatively minor impact on the public's continued use and enjoyment of Wyman Lake and the Kennebec River. Since the turbines would be visible from a relatively small portion of the lake, users will still be able to enjoy the same type of recreational activities they now participate in.

Conclusion. The Highland Wind Project should not significantly compromise views from Wyman Lake and will have no impact on the views from the Kennebec River below Wyman Dam. The Project should not have an unreasonable adverse effect on its scenic character or the uses related to the scenic character of the lake and river.

17.5F. 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.

Appalachian Trail

Context. For the northbound hiker, the Appalachian Trail enters the southwest side of the Bigelow Preserve, ascending the south slope of Bigelow Mountain on the Bigelow Range Trail. The AT follows the ridgeline of the Bigelow Range, starting east of Cranberry Peak and extending east over The Horns, West Peak, Myron H. Avery Peak, and Little Bigelow Mountain, where it then descends down to East Flagstaff Road. The Appalachian Mountain Club's Maine Mountain Guide offers this description of the AT atop the Bigelow Range: "The Bigelow Range runs east-west for some twelve miles. It is second only to the Katahdin region in interest and opportunities for superb ridge walking. The central features are the twin 'cones,' Avery Peak and West Peak, which project above the ridge. The equally symmetrical twin 'horns,' farther west and only slightly lower, are North Horn and South Horn. Still farther west is Cranberry Peak, with its bare ledges. To the east of Avery Peak, but separated by it by a deep notch, lies Little Bigelow Mtn. From Avery Peak, there is a magnificent outlook over the rugged wilderness of peaks,

ponds, streams, and extensive Flagstaff Lake – perhaps the best view in the state, except for the one from Katahdin."[30]

Approximately 18.9 miles of the Appalachian Trail are located within eight miles of the Highland Wind Project. Of these, 7.9 miles are found within the Bigelow Preserve. The remaining 11 miles are in the wooded lowlands around West, Middle, and East Carry Ponds.[31]

Myron Avery Peak, 7.7 miles northwest of the Highland Wind Project, is the second highest mountain in the Bigelow Range[32]. A stone and wood lookout tower on Avery Peak and a stone plaque mounted on a boulder near the summit commemorates Myron H. Avery[33]. The view from the peak offers a 330º± panorama of the surrounding landscape (West Peak to the west blocks a portion of the distant view), which includes the Bigelow Range, the Boundary Mountains to the north, Crocker Mountain, Sugarloaf Mountain, Little Poplar Mountain to the south, and Stewart Mountain to the southeast. The view is especially noteworthy due to the presence of Flagstaff Lake, which is visible over half of the view on the north side of the mountain. The Maine Appalachian Trail Club (MATC) Map and Guide to the Appalachian Trail in Maine notes that "on clear days outstanding views include: Barren-Chairback Range to NE, Appalachian chain to SW including Mt. Washington, and Canadian Border Mtns. to NW.[34]

Hikers on the AT on Bigelow Mountain are surrounded by cultural modifications to the natural landscape throughout much of its length. Flagstaff Lake is a man-made impoundment that was created by the construction of a dam on the Long Falls portion of the Dead River that started in 1949. During low water conditions, it is sometimes possible to see the remnants of the villages of Flagstaff, Dead River, and Bigelow that were displaced by the construction of the impoundment.

The viewing experience from Avery Peak is split by the orientation of the Bigelow Range into the northerly view, toward Flagstaff Lake, and the southerly view, toward Carrabassett Valley and Sugarloaf Mountain. The view to the north includes the highly configured shoreline of Flagstaff Lake in the midground, The Maine State Planning Office's Scenic Assessment Handbook notes that "the presence of water can be a powerful predictor of scenic preference.[35]" While both halves of the view from Avery Peak are memorable due to the observer's position relative to the mountains, it is the northerly view overlooking the lake that is particularly noteworthy.

Hikers atop Avery Peak have a full view of the Sugarloaf USA ski resort in Carrabassett Valley to the south. The top of Sugarloaf Mountain is 8.1 miles from Avery Peak and the view includes ski trails, access roads, parking lots, and the lodge, hotel, resort homes, and condominium development at the base of the mountain (6.5 miles away). The 18-hole Sugarloaf golf course is also visible at a distance of 5.3 miles. In addition, hikers also see the runway of the Sugarloaf Regional Airport (4.7 miles to the southeast), portions of Route 27, and several other structures in Carrabassett Valley. The view also

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[30] Maine Mountain Guide, 9th Edition, AMC Guide to Hiking Trails of Maine, Featuring Baxter State Park. Appalachian Mountain Club.

[31] The Carry Ponds section of the Appalachian Trail is part of a 17-mile stretch that is characterized by low, wooded ridges and large ponds. "There's not a lot of elevation gain and no great views," said Mark Simpson, overseer of the Carry Ponds section for the Maine Appalachian Trail Club. "It's a fairly easy hike, and there are nice ponds to spend the night at. Hikers will find plenty to their liking here: an exciting crossing of the Kennebec River, three spectacular ponds, two great campsites and even a bit of history. You may spot a moose or two, and at this time of year will likely bump into a "thru-hiker," one of those storied characters hiking the entire AT. The Carry Ponds section makes an appealing two- or three-day hike for backpackers desiring an extra measure of solitude."
From: http://outdoors.mainetoday.com/hiking/trails/carryponds.shtml

[32] West Peak (el. 4145 feet), 0.7 miles to the west of Avery Peak, is 57 feet taller.

[33] "The Myron H. Avery Peak was named for a key figure in the establishment of the Appalachian Trail, who chaired the Appalachian Trail Conference from 1931 to 1952; and founded the Maine Appalachian Trail Club (MATC) in 1935, serving as Overseer of the Trail for that organization 1935 to 1949 and its President from 1949 to his death in 1952." Flagstaff Region Management Plan. Maine Department of Conservation. June 12, 2007.

[34] Map 5, The Official Map and Guide to the Appalachian Trail in Maine, 15th edition. Maine Appalachian Trail Club. 2009.

[35] Scenic Assessment Handbook. Maine State Planning Office. Terrence J. DeWan & Associates. October 2008.

includes extensive patch cuts on the western slope of Stewart Mountain, below the northern end of the proposed Highland Wind Project.

Approximately 0.3± mile of the trail on Avery Peak is located above the tree line, which affords panoramic views in all directions. Weather conditions at the summit can be highly unpredictable, with frequent storms and high winds coming in from the north.

The trail from the open summit of Avery Peak heads east and descends through a krummholz community, affording periodic views to the south. The trail eventually enters the woods and continues to a side trail leading to the top of Old Man's Head, a bold cliff topped by a rounded outcrop, 0.8 mile from the summit of Avery Peak. Openings in the forest cover afford panoramic views that extend from Flagstaff Lake on the north to Little Bigelow Mountain on the east. From here the trail descends over 1,000 feet in 1.2 miles into Safford Notch, where the AT joins with the Safford Notch trail (leading north to East Flagstaff Road and the Round Barn public use area on Flagstaff Lake). The Safford Notch campsite, maintained by the MATC, has two tent platforms and water from a brook. The Project will not be visible from the campsite or from most locations on the trail below Old Man's Head.

From Safford Notch, the AT ascends 850± feet over 1.8 miles in the woods to reach the western end of Little Bigelow Mountain. Little Bigelow is the second mountain in the Bigelow Range where there will be views of the Project within eight miles. The majority of the trail between Avery Peak and Little Bigelow Mountain is wooded, with only occasional views beyond the AT itself.

The trail on Little Bigelow Mountain follows an elongated wooded ridge, oriented northwest-southeast, at the top of its steep southwestern face. The majority of the trail is located in a fir-birch forest. Views of portions of the Project at a distance of 7.1± miles would be possible from a few relatively short (75' to 100' long) rock outcrops. Views of the turbines from these locations would be partially blocked by the eastern end of Little Bigelow Mountain. The MATC Official Map mentions a side trail off the AT at the western end of Little Bigelow Mountain that leads to a "fine viewpoint.[36]"

Most of the trail to the eastern end of Little Bigelow Mountain (1.4 miles in length) is in the woods, with a few filtered views to the south. An opening in the woods at the eastern end of Little Bigelow Mountain affords a 200º± panoramic view extending from Avery Peak on the west to the northern end of Stewart Mountain on the east. Sugarloaf Mountain, and its ski and golf development, is prominently visible to the southwest at a distance of 7.0± miles. The view also includes the Sugarloaf Regional Airport (2.8 miles to the south) and an existing 115 kV transmission line that runs between Bigelow Mountain and Stewart Mountain. At its closest point the transmission line is 0.6 miles from Little Bigelow Mountain. The MATC Official Map describes the views south of Carrabassett Valley and west of Sugarloaf Mountain and Avery Peak as "striking.[37]"

A lower ledge below the eastern end of Little Bigelow Mountain provides a 130º± panoramic view that extends from the eastern end of Flagstaff Lake to the northern end of Stewart Mountain. This view also includes the 115 kV transmission line running east-west on the south side of the Bigelow Range and the north end of Stewart Mountain (see photographs in Appendix A: Study Area Photographs).

From the eastern end of Little Bigelow Mountain, the AT continues 3.1 miles to East Flagstaff Road. The Little Bigelow Lean-to is located 1.7 miles from the eastern end of the mountain. The Project would not be visible from the lean-to, or from most locations along this portion of the trail due to dense tree cover and intervening topography.

Significance. The Appalachian Trail is a scenic resource of national significance, by virtue of its designation as a National Scenic Trail by the National Park Service. The underlying Bigelow Mountain has been designated a National Natural Landmark by the Department of the Interior.

[36] Map 5, The Official Map and Guide to the Appalachian Trail in Maine, 15th edition. Maine Appalachian Trail Club. 2009..
[37] ibid.

While not the tallest mountain in the Bigelow Range, Avery Peak is often considered one of the most significant destinations due to its panoramic views, extensive open summit, stone lookout tower, and Myron Avery memorial plaque. Little Bigelow, by contrast, is a much lower mountain (only Cranberry Peak is lower) and does not have a clearly defined open summit.

Public Uses. There are several types of hikers who use the Appalachian Trail in the Bigelow Range. The first are the through hikers, usually northbound, who are traveling from Springer Mountain, Georgia to Mount Katahdin. While Avery Peak is a likely stopping point, the ledges of Little Bigelow Mountain may not hold the same appeal for this group, who can be pushing hard to finish their journey. In 2005, according to records kept by the Appalachian Trail Conservancy,[38] as many as 579 hikers may have crossed over the Bigelow Range on a through hike in 2005; 549 in 2006; 491 in 2007; and 578 in 2008.

The second group is backpackers, who spend at least one night in one of the campsites or shelters on the mountain. Primitive camping is available at the east side of Little Bigelow Mountain, at Safford Notch between Little Bigelow and Avery Peak, and several other locations on the mountain.

The third group is the day hikers. Little Bigelow Mountain is an attractive destination for this group since the trail from Long Falls Dam Road is less strenuous than other routes leading to the higher elevations, and the time needed is considerably less. In 2004 the MATC reported that their caretaker on Bigelow Mountain recorded a total of 2,332 trail users, which included 623 day hikers (an increase of 35% since 1980), 421 overnight campers, 765 in organized groups, and 523 through-hikers.[39]

The Safford Brook trail (2.2 miles from East Flagstaff Road to the ridge) on the north side of the mountain offers a shorter alternative to reaching Avery Peak. Hikers who use this route avoid Little Bigelow Mountain altogether. The Flagstaff Region Management Plan recommends actions to relieve pressure on the "heavily used Safford Brook Trail."

Viewer Expectations. People who hike the Appalachian Trail on Bigelow Mountain are expected to have high expectations of scenic quality, given the history of the Bigelow Preserve and the dramatic combination of mountain and lake scenery. Their expectations may be tempered by the presence of four-season recreation development in Carrabassett Valley – including Sugarloaf ski area, Sugarloaf golf course, Sugarloaf Regional Airport, and development along Route 27 – that is directly across the valley from Avery Peak and highly visible from Little Bigelow Mountain.

Project Impacts. The Project would be visible from approximately 0.7 miles of the AT within an 8-mile radius of the Project. From Avery Peak the turbines would be seen in the background viewing distance, against the dark color and fine texture of the surrounding hills. While the white color of the turbine components would be neutralized to a light gray at that distance by the effects of atmospheric perspective, they would still have a moderate-strong color contrast with the surrounding vegetation, except during winter months. The amount of contrast would vary considerably with different atmospheric and light conditions. The Highland Wind Project would be perceived as a significant object in a very large-scale landscape, similar in scale to the recreational and community development on Sugarloaf Mountain. The 400-foot tall turbines will be subordinate to the 1,800-foot mountains that they would be sited on.

As noted on Photosimulations 1 and 2, portions of the access roads and clearings surrounding the closest turbines would be slightly visible and appear as subtle changes in color and texture, compared to the surrounding forestland. The new openings will be considerably smaller and much less visible than the existing patch cuts on the western flank of Stewart Mountain. The warning lights would be visible after

[38] These numbers are a combination of reported southbound hikers who started at Mount Katahdin and northbound hikers who finished at Mt. Katahdin.
www.appalachiantrail.org/site/c.mqLTIYOwGlF/b.4805579/k.DA92/2000Milers_Facts_and_Statistics.htm
[39] www.matc.org/horns.htm

sunset as very small points of red light at a distance of 7.8+ miles from Avery Peak. The lights would not be visible from the campsites or lean-tos on the AT.

Avery Peak. Most of the visibility from Bigelow Mountain occurs on the open summit of Avery Peak, where six turbines would be visible at distances of 7.8 to 8.0 miles.[40] Views of the Project within eight miles of Avery Peak would be seen over an arc of less than 5º in a 330º view. By comparison, the development at Sugarloaf Mountain (which is 6.5 miles to the base lodge and 5.3 miles to the golf course) is seen over an arc of 20º.

Little Bigelow Mountain. The closest views of the Project on the AT would be from an opening in the woods on the eastern ridge of Little Bigelow Mountain, where the nearest turbines would be 4.3 miles to the southeast, and from smaller openings just below the eastern ridge (3.9 miles away). The Project would also be visible from several other short openings in the woods from the trail on the east side of Little Bigelow Mountain.

The view from the eastern end of Little Bigelow Mountain would include up to 25 turbines on Stewart Mountain and Witham Mountain, seen at distances of 4.3 to 8 miles. The turbines on Bald Mountain, Burnt Mountain, and Briggs Hill would all be greater than eight miles from the observer. Views of the Project within eight miles of Little Bigelow Mountain would seen over an arc of approximately 24º in a 200º view.

East of Bigelow Preserve. The only view of the Project east of Long Falls Dam Road would be in the vicinity of a small beach near Arnolds Point on West Carry Pond, where hikers may be able to see 9± turbines on Stewart Mountain, and the upper portions of another 9± near the horizon. The majority of the trail is in forestland and would not have visual contact with the Project. Photosimulation 4 illustrates the view from a point on West Carry Pond near Arnolds Point, approximately 0.25 miles west of the AT and 3.3 miles from the closest turbine.

Potential Effect on Public Use*.* The Highland Wind Project will introduce large-scale man-made elements into an expansive landscape that is characterized by dramatic landforms, wide valleys, and significant recreational development. The Project would be seen in the background from the most significant viewpoint (Avery Peak), where it would occupy a relatively small part of the panoramic view. The Highland Wind Project should have a minor to moderate impact on the public's continued use and enjoyment of the Appalachian Trail in the Bigelow Preserve.

Conclusion.

At Avery Peak, the more noteworthy view is to the north, overlooking the waters of Flagstaff Lake and the distant mountains, where little human impact is visible. The context of the Highland Wind Project is the southerly view, which now includes Sugarloaf Ski and Golf Resort and related development in Carrabassett Valley. While the six turbines that are within eight miles of this viewpoint will be visible, they will be seen in conjunction with other large-scale human activities.

Over the remaining portion of the AT east of Avery Peak, there are only a few viewpoints where turbines within 8 miles will be visible. The trail experience in this section is primarily in the woods over highly varied terrain. On Little Bigelow Mountain there are a few locations of relatively short duration where some views of the Project would be possible. The most significant one is on the eastern end of the mountain, where the Project would be seen in conjunction with the Sugarloaf development, the airport, and the transmission corridor.

While the Highland Wind Project will be moderately to strongly visible in several locations along the Appalachian Trail, the presence of the turbines, largely seen in the background, should not significantly

[40] As noted on Photosimulation 2, a total of 44 turbines would be within the viewshed of Avery Peak. However, the Maine Wind Power Law has determined that generating facilities greater than eight miles from a scenic resource of state or national significance are considered 'insignificant.' (§ 3452.3.)

compromise views from the trail. The Project should not have an unreasonable adverse effect on its scenic character or the uses related to the scenic character of the Appalachian Trail.

17.5G. A scenic turnout on a scenic highway constructed by the Department of Transportation.

As noted in Section 17.5 above, there are no scenic turnouts on scenic highways constructed by the Maine Department of Transportation that would be affected by the Project.

17.5H. Scenic viewpoints located in the coastal area.

The Highland Wind Project is approximately 66 miles from the coastal area and well outside its zone of visibility. There will be no visual impacts on scenic viewpoints located in the coastal area.

17.6 CONCLUSION

There are several scenic resources of state or national significance within the viewshed of the Highland Wind Project. Within the 8-mile study area the most significant scenic resources are the views from Avery Peak and Little Bigelow Mountain on the Appalachian Trail in the Bigelow Preserve and the eastern end of Flagstaff Lake.

Within the 8-mile study area, the project will not be visible from any state parks, MDOT scenic turnouts, or scenic viewpoints located in the coastal area. Throughout the majority of the study 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, ridgeline 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 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 moderate to strong visual impact on several of these resources is anticipated, the Highland Wind Project should not have an unreasonable adverse impact on scenic values and existing uses of scenic resources of state or national significance.

Figure 6: Visual Impact Assessment: View from Little Bigelow Mountain (4.3 Miles to Project)

VISUAL ELEMENTS	VISUAL SUB ELEMENTS	INDICATORS/CLUES	ELEMENT RATINGS		ELEMENT SCORES
LANDSCAPE COMPATIBILITY	COLOR	Significantly different color, hue, value chroma	Severe	3	3
			Moderate	2	
			Minimal	1	
			None	0	
	FORM	Incompatible 2/3 dimensional shape with landscape surroundings	Severe	3	3
			Moderate	2	
			Minimal	1	
			None	0	
	LINE	Incompatible edges, bands, or silhouette lines introduced	Severe	3	1
			Moderate	2	
			Minimal	1	
			None	0	
	TEXTURE	Incompatible textural grain, density, regularity or pattern	Severe	3	2
			Moderate	2	
			Minimal	1	
			None	0	
			SUBTOTAL →		9
SCALE CONTRAST		Major scale introduction/intrusion	Severe	12	
		One of several major scales or major objects in confined setting	Moderate	8	
		Significant object or scale	Minimal	4	
		Small object or scale	None	0	
			SCORE		8
SPATIAL DOMINANCE	LANDSCAPE SITUATION BACKDROP	Object/activity dominates or is prominent in whole landscape composition; or is prominently situated within the landscape; or dominates landform, water, or sky backdrop	Dominate	12	
			Co-Dominate	8	
			Sub-ordinate	4	
			Insignificant	0	
			SCORE		8
TOTAL VISUAL IMPACT SEVERITY			→		25

Severe	27-36	
Strong	26-18	XXXXX
Moderate	17-9	
Weak or Negligible	8-0	

DEPLW0541-A2002
Used with permission of R.C. Smardon

NOTE: Evaluation has considered the effect of all 35 visible turbines. The rating would not drop appreciably by only considering the 24 turbines within 8 miles.

Figure 7: Visual Impact Assessment: View from Avery Peak

VISUAL ELEMENTS	VISUAL SUB ELEMENTS	INDICATORS/CLUES	ELEMENT RATINGS		ELEMENT SCORES
LANDSCAPE COMPATIBILITY	COLOR	Significantly different color, hue, value chroma	Severe	3	2
			Moderate	2	
			Minimal	1	
			None	0	
	FORM	Incompatible 2/3 dimensional shape with landscape surroundings	Severe	3	2
			Moderate	2	
			Minimal	1	
			None	0	
	LINE	Incompatible edges, bands, or silhouette lines introduced	Severe	3	1
			Moderate	2	
			Minimal	1	
			None	0	
	TEXTURE	Incompatible textural grain, density, regularity or pattern	Severe	3	1
			Moderate	2	
			Minimal	1	
			None	0	
			SUBTOTAL →		7
SCALE CONTRAST		Major scale introduction/intrusion	Severe	12	
		One of several major scales or major objects in confined setting	Moderate	8	
		Significant object or scale	Minimal	4	
		Small object or scale	None	0	
			SCORE		6
SPATIAL DOMINANCE	LANDSCAPE SITUATION BACKDROP	Object/activity dominates or is prominent in whole landscape composition; or is prominently situated within the landscape; or dominates landform, water, or sky backdrop	Dominate	12	
			Co-Dominate	8	
			Sub-ordinate	4	
			Insignificant	0	
			SCORE		6
TOTAL VISUAL IMPACT SEVERITY →					19
			Severe	27-36	
			Strong	26-18	XXXXX
			Moderate	17-9	
			Weak or Negligible	8-0	

DEPLW0541-A2002
Used with permission of R.C. Smardon

NOTE: Evaluation has considered the effect of all 44 visible turbines. The rating would drop to 'Moderate' by only considering the 6 turbines within 8 miles.

Figures

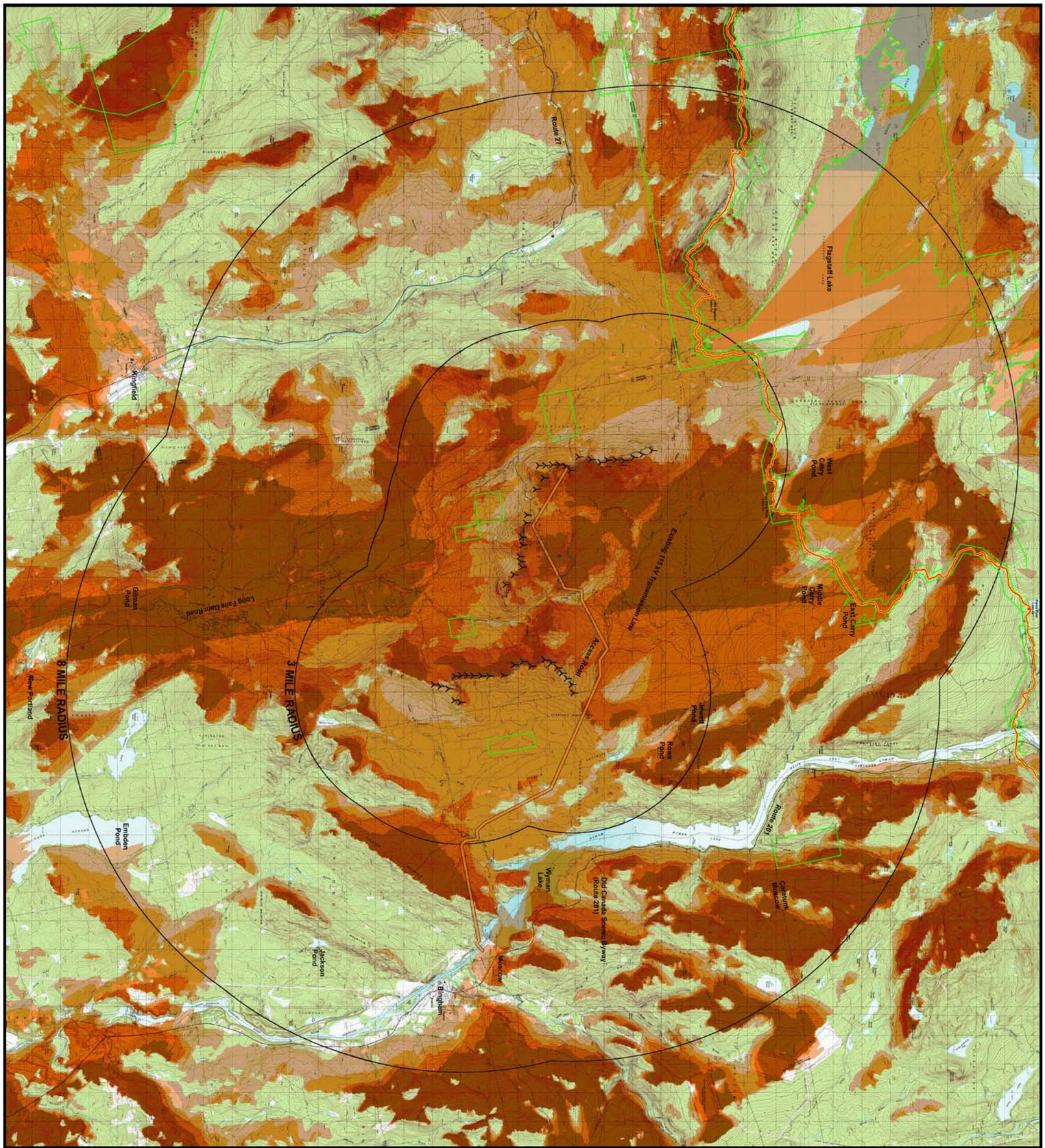

Figure: 2

VIEWSHED MAP

Highland Wind Project

HIGHLAND WIND LLC

December 2009

tjd&a

Terrence J. DeWan & Associates
Landscape Architects & Planners

121 West Main Street, Yarmouth, ME 04096
telephone: 207.846.0757 fax: 207.846.0675

LEGEND

- TURBINES
- PROPOSED COLLECTOR AND GENERATOR LEAD LINE
- CONSERVATION LAND AREAS FROM ME OGIS
- APPALACHIAN TRAIL

NUMBER OF TURBINES VISIBLE

- 1-11
- 12-23
- 24-35
- 36-48

NOTES

The viewshed map is very conservative in that it does not account for the screening effects of existing vegetation, buildings, or other structures that will block views of the Project from most roads and population centers.

NORTH

1 MILE

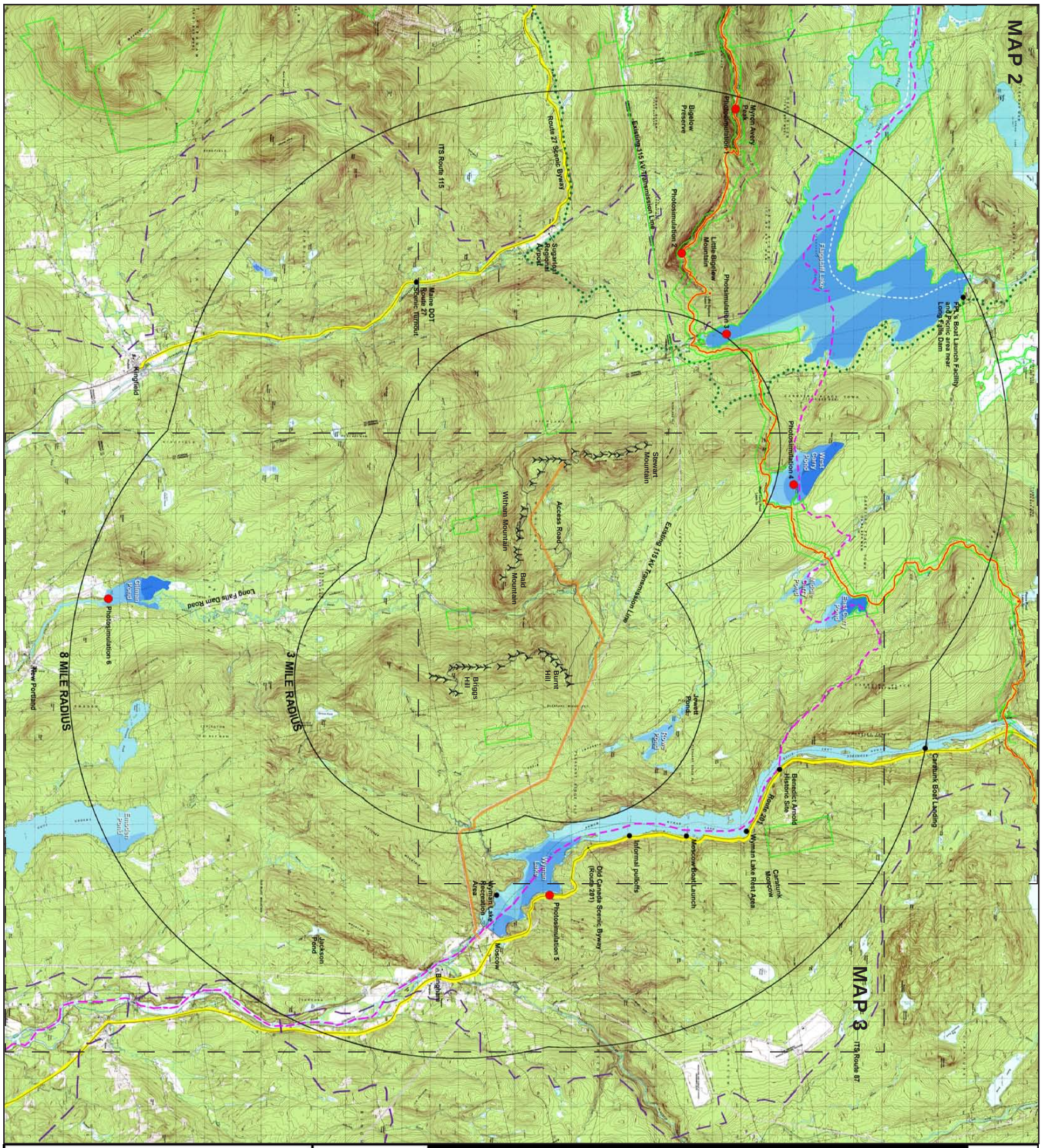

Figure 3a

MAP 1:STUDY AREA
Highland Wind Project

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LEGEND

- TURBINES
- PROPOSED COLLECTOR AND GENERATOR LEAD LINE
- PHOTOSIMULATION LOCATION (SEE APPENDIX B)
- CONSERVATION LAND AREAS FROM ME OGIS
- APPALACHIAN TRAIL
- SCENIC BYWAYS
- APPROXIMATE LOCATION OF ARNOLD TRAIL
- MAINE HUTS AND TRAILS SYSTEM
- APPROXIMATE ITS ROUTES
- NORTHERN FOREST CANOE TRAIL

NUMBER OF TURBINES VISIBLE WITHIN 8 MILES OF WATERBODIES

- 1 - 11
- 12 - 23
- 24 - 35
- 36 - 48

NOTES

Current Maine OGIS Data, dated 2006, for Maine Conservation Lands reflects an outdated location for Appalachian Trail in a few areas within the Bigelow Preserve. The trail location shown is based on the *Appalachian Trail Guide to Maine* by MATC, dated 2009.

NORTH

1 MILE

ONE MILE

8 MILE RADIUS

3 MILE RADIUS

BIGELOW PRESERVE

Myron Avery Peak

Photosimulation 1
P1-6

Photosimulation 2
P20-22

Photosimulation 3
P26-27

Photosimulation 4
P32-35

Little Bigelow Mountain

Flagstaff Lake

Dead River

Existing 115 kV Transmission Line

Route 27

ITS Route 115

Sugarloaf Regional Airport

Maine DOT Route 27 Scenic Turnout

Access Road

Route 201

Carrying Place Town

West Carry Pond

Middle Carry Pond

East Carry Pond

Jewett Pond

Rowe Pond

Wyman Lake

Benedict Arnold Historic Site

Carratunk Boat Landing

FPL's Boat Launch Facility and Picnic area near Long Falls Dam

Informal pull

Moscow Boat

Pleasant Ridge Plt

Concord

P10-12
P13-15
P16-19
P23-25
P28-29
P30
P31
P36-39
P43
P45
P46
P47
P50
P55
P61
P62
P63
P64
P65-67
P68-69

Figure 3b:

MAP 2: Northwest portion of
STUDY AREA
Highland Wind Project

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LEGEND

- TURBINES
- PROPOSED COLLECTOR AND GENERATOR LEAD LINE
- PHOTOSIMULATION LOCATION (SEE APPENDIX B)
- P# PHOTO LOCATION (SEE APPENDIX A)
- CONSERVATION LAND AREAS FROM ME OGIS
- APPALACHIAN TRAIL
- SCENIC BYWAYS
- APPROXIMATE LOCATION OF ARNOLD TRAIL
- MAINE HUTS AND TRAILS SYSTEM
- APPROXIMATE ITS ROUTES
- NORTHERN FOREST CANOE TRAIL

NUMBER OF TURBINES VISIBLE WITHIN 8 MILES OF WATERBODIES

- 1 - 11
- 12 - 23
- 24 - 35
- 36 - 48

NOTES

Current Maine OGIS Data, dated 2006, for Maine Conservation Lands reflects an outdated location for Appalachian Trail in a few areas within the Bigelow Preserve. The trail location shown is based on the *Appalachian Trail Guide to Maine* by MATC, dated 2009.

NORTH

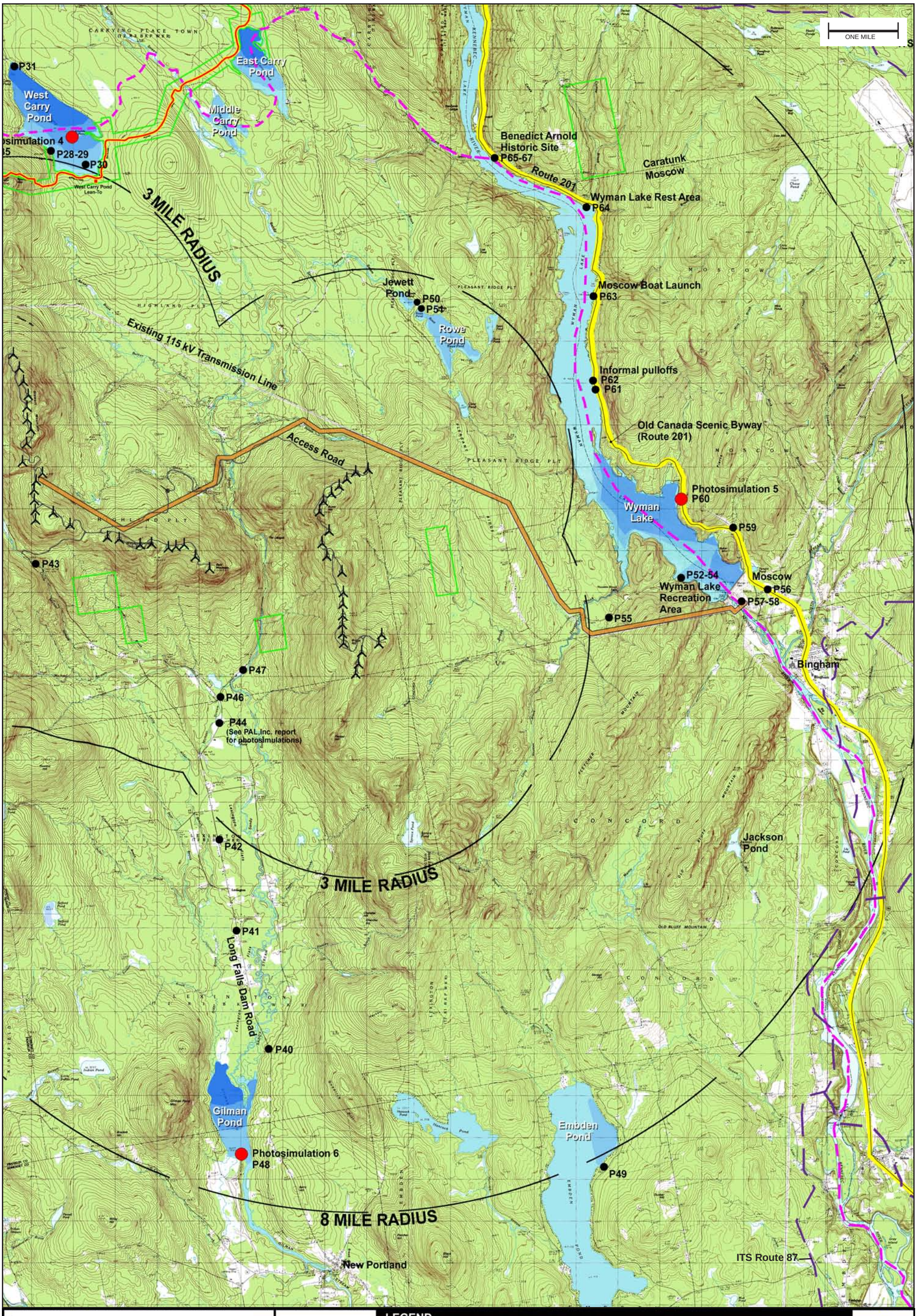

Figure 3c

MAP 3: Southeast portion of

STUDY AREA

Highland Wind Project

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LEGEND

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- P# PHOTO LOCATION (SEE APPENDIX A)
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- APPROXIMATE LOCATION OF ARNOLD TRAIL
- MAINE HUTS AND TRAILS SYSTEM
- APPROXIMATE ITS ROUTES
- NORTHERN FOREST CANOE TRAIL

NUMBER OF TURBINES VISIBLE WITHIN 8 MILES OF WATERBODIES

- 1 - 11
- 12 - 23
- 24 - 35
- 36 - 48

NOTES

Current Maine OGIS Data, dated 2006, for Maine Conservation Lands reflects an outdated location for Appalachian Trail in a few areas within the Bigelow Preserve. The trail location shown is based on the *Appalachian Trail Guide to Maine* by MATC, dated 2009.

NORTH

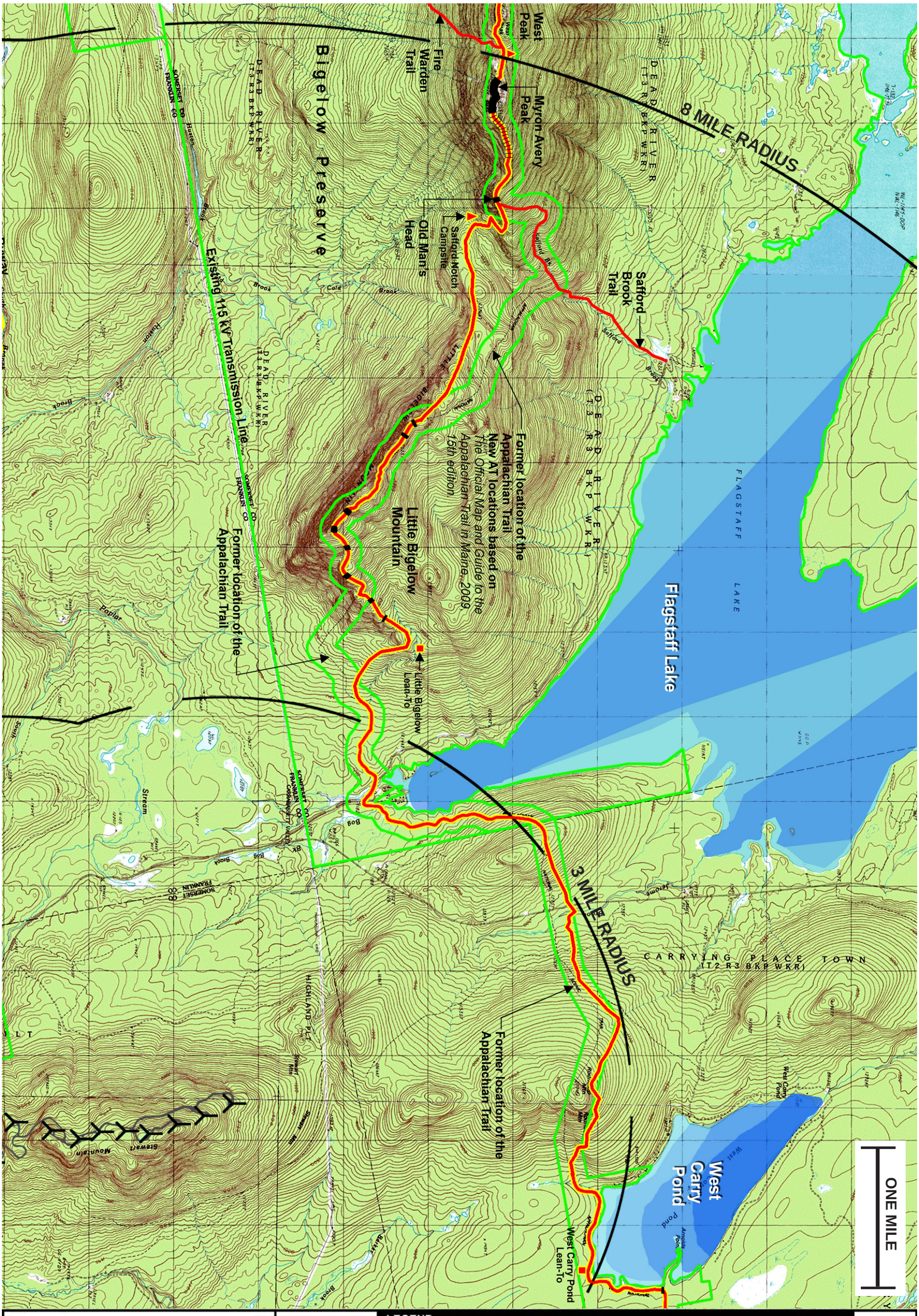

Figure 3d
Map 4: Appalachian Trail and Bigelow Preserve

STUDY AREA
Highland Wind Project

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LEGEND

- TURBINES
- PROPOSED COLLECTOR AND GENERATOR LEAD LINE
- CONSERVATION LAND AREAS FROM ME OGIS
- APPALACHIAN TRAIL
- PORTIONS OF AT WHERE THERE WILL BE OPEN VIEWS OF THE PROJECT
- PORTIONS OF AT WHERE THERE MAY BE FILTERED VIEWS OF THE PROJECT

NUMBER OF TURBINES VISIBLE WITHIN 8 MILES OF WATERBODIES

- 1 - 11
- 12 - 23
- 24 - 35
- 36 - 48

NOTES

Current Maine OGIS Data, dated 2006, for Maine Conservation Lands reflects an outdated location for Appalachian Trail in a few areas within the Bigelow Preserve. The trail location shown is based on the *Appalachian Trail Guide to Maine* by MATC, dated 2009.

NORTH