VISUAL IMPACT ASSESSMENT

For the Proposed Bowers Wind Project

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Prepared for:
Champlain Wind, LLC
c/o First Wind, LLC
179 Lincoln Street, Suite 500
Boston, Massachusetts 02111
Office: (617) 960-2888

Prepared by:
LandWorks
228 Maple Street, Suite 32
Middlebury, Vermont 05753
Office: (802) 388-3011
Fax: (802) 388-1950
www.landworksvt.com
info@landworksvt.com

LandWorks

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1. EXECUTIVE SUMMARY

1.1 Overview

Champlain Wind, LLC is proposing the Bowers Wind Project (Project), a utility-scale wind energy facility in Penobscot County and Washington County, Maine. The Project includes up to 27 wind turbines, associated access roads, a 34.5-kilovolt (kV) electrical collector system, an electrical collection substation, an Operations and Maintenance (O&M) building, and up to four permanent 80-meter meteorological (met) towers.

The Project will be constructed on three ridges in the project area: Bowers Mountain and an unnamed ridge to the south ("South Peak") in Carroll Plantation, and Dill Hill in Kossuth Township. Access roads will connect each turbine location and will provide construction and maintenance access from Route 6. The electrical collector line will connect each turbine location and will then travel north for approximately 5 miles towards a proposed substation located adjacent to Line 56.

Within the eight-mile viewshed[1] (or study area), there are no national or state parks, national natural landmarks or federally designated wilderness areas, scenic rivers or streams, scenic viewpoints on state public reserve land, Maine Department of Transportation scenic turnouts on scenic highways, or scenic viewpoints located in the coastal area. There is one National Historic Register site, Springfield Congregational Church, but the Project is not visible from this location. There are 13 great ponds identified within the Project viewshed having outstanding or significant scenic quality. Of those, only 4 will have potential visibility of the Project within 3 miles and include the following:

1. *Duck Lake* – Up to 18 turbines may be visible primarily as middleground views, but the majority of views will be of less than 12 turbines, or portions thereof. The closest visible turbine is approximately 2.7 miles away.
2. *Junior Lake* – Up to 23 turbines may be visible, with the closest visible turbine at 2.99 miles. However, the majority of views will be beyond 3 miles. The northern half of the lake will have middleground views of up to 13 turbines. The southern half of the lake will have background views of up to 23 turbines.
3. *Pleasant Lake* - Up to 27 turbines may be visible primarily as middleground views. The closest visible turbine is approximately 2.16 miles away.
4. *Shaw Lake* – Up to 25 turbines may be visible primarily as middleground views. The closest visible turbine is approximately 2.6 miles away.

[1] A viewshed is generally defined as the geographic areas from which a project can be seen or has the potential to be seen. For the purposes of this project and the regulatory review requirements, the viewshed is all areas within an 8-mile radius of any of the project's turbine locations. The project viewshed is presented in *Exhibit 1: Viewshed Map*. See also Section 2.3.2 of this VIA.

There are 4 other lakes of scenic significance in the study area that have potential visibility of the Project within 3-8 miles and include:

1. *Bottle Lake* – Up to 13 turbines may be visible primarily as background views. The closest visible turbine is approximately 5.1 miles away[2]. Views will be from a limited portion of the lake.
2. *Keg Lake* – Up to 18 turbines may be visible primarily as middleground views. The closest visible turbine is approximately 3.78 miles away.
3. *Scraggly Lake* - Up to 26 turbines may be visible primarily as middleground, approaching background, views. The closest visible turbine is approximately 3.3 miles away.
4. *Sysladobsis Lake* – Up to 22 turbines may be visible as background views. The closest visible turbine is approximately 6.34 miles away.

Horseshoe Lake, West Musquash Lake, and Norway Lake are also great ponds of state or national significance located within the study area. Although the viewshed mapping indicates visibility within the 8-mile viewshed, these lakes will not be adversely impacted by the Project since the nearest *visible* turbine is beyond 8-miles for each lake. There are two other great ponds identified within the 8-mile study area, Lombard Lake and Upper Sysladobsis Lake, but neither lake has visibility of the Project due to intervening topography.

1.2 Conclusion

This region of Maine has very low population, vast woodlands, and plentiful lakes. It is not recognized as a tourism center and there are primitive recreational opportunities. It is a working landscape on which the region's residents have depended for centuries, including the harvesting and processing of forest products, evidence of which can be seen in the hillsides and the network of logging roads throughout the area. Throughout most of the study area, topography, forest cover, and roadside vegetation constrain or block views of the Project, limiting the overall visual impact. There are scenic resources of state or national significance within the viewshed, which include thirteen great ponds and one national historic site. For each of these resources, the assessment examined its significance, character, use, and visibility, as defined by 35-A MRSA §3452.3 (see Section 4 for detailed descriptions and analysis). This information was used to make a determination of whether the 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." This Visual Impact Assessment demonstrates that the Project, as proposed, **will not result in an unreasonable adverse effect on the scenic values and existing uses related to scenic character of a scenic resource of state or national significance.**

[2] Based on Exhibit 4: Viewshed Map [topography and vegetation/from the hub]

2. INTRODUCTION

2.1 Background

LandWorks has developed a Visual Impact Assessment (VIA) of the Proposed Bowers Wind Project (Project) on behalf of Champlain Wind, LLC, the Project developer. This assessment is designed to be in conformance with and in response to the applicable guidelines and regulations promulgated by the State of Maine, and specifically follows the requirements set forth in "An Act to Implement Recommendations of the Governor's Task Force on Wind Power Development," Public Law 2007, Chapter 661 and, to the extent applicable, 12 M.R.S.A., §685-B(4) and §10.24 of the Land Use Regulation Commission's (LURC) Land Use Districts and Standards. This report begins with an overview of the applicable regulations and the methodology employed by LandWorks in preparing the assessment. The report includes a project description, presentation of existing conditions, an inventory of scenic resources of state or national significance, and an analysis and conclusion on the significance of Project visibility on any potentially affected scenic resource.

2.2 Regulatory Purview

The Project is located in an area identified by the State for expedited permitting and is therefore subject to review under the Legislature's enacted standards specific to wind power projects located within the expedited permitting area. The applicable criteria were enacted in 2008 as part of "An Act To Implement Recommendations of The Governor's Task Force on Wind Power Development." The relevant provisions are:

> ***35-A MRSA §3452. Determination of effect on scenic character and related existing uses***
>
> ***1. Standard.*** *In making findings regarding the effect of an expedited wind energy development on scenic character and existing uses related to scenic character pursuant to Title 12, section 685-B, subsection 4 or Title 38, section 484, subsection 3 or section 480-D, the primary siting authority shall determine, in the manner provided in subsection 3, whether the development has an unreasonable adverse effect on the scenic values and existing uses related to scenic character of a scenic resource of state or national significance. Except as otherwise provided in subsection 2, determination that a wind energy development fits harmoniously into the existing natural environment in terms of potential effects on scenic character and existing uses related to scenic character is not required for approval under either Title 12, section 685-B, subsection 4, paragraph C or Title 38, section 484, subsection 3.*

2. Exception; certain associated facilities. *The primary siting authority shall evaluate the effect of associated facilities of a wind energy development on scenic character and existing uses related to scenic character in accordance with Title 12, section 685-B, subsection 4, paragraph C or Title 38, section 484, subsection 3, in the manner provided for development other than wind energy development, if the primary siting authority determines that application of the standard in subsection 1 to the development may result in unreasonable adverse effects due to the scope, scale, location or other characteristics of the associated facilities. An interested party may submit information regarding this determination to the primary siting authority for its consideration. The primary siting authority shall make a determination pursuant to this subsection within 30 days of its acceptance of the application as complete for processing.*

3. Evaluation criteria. *In making its determination pursuant to subsection 1, and in determining whether an applicant for an expedited wind energy project must provide a visual impact assessment in accordance with subsection 4, the primary siting authority 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 the primary siting authority 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 under subsection 1, the primary siting authority 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.

> ***4. Visual impact assessment; rebuttable presumption.*** *An applicant for an expedited wind energy development shall provide the primary siting authority with a visual impact assessment of the development that addresses the evaluation criteria in subsection 3 if the primary siting authority determines such an assessment is necessary in accordance with subsection 3. 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 3 miles, measured horizontally, from a scenic resource of state or national significance. The primary siting authority may require a visual impact assessment for portions of the development's generating facilities located more than 3 miles and up to 8 miles from a scenic resource of state or national significance if it finds there is substantial evidence that a visual impact assessment is needed to determine if there is the potential for significant adverse effects on the scenic resource of state or national significance. Information intended to rebut the presumption must be submitted to the primary siting authority by any interested person within 30 days of acceptance of the application as complete for processing. The primary siting authority shall determine if the presumption is rebutted based on a preponderance of evidence in the record.*

Although not required to do so, Champlain Wind, LLC has extended the VIA to the full eight miles to ensure that visibility on all scenic resources of state or national significance within eight miles is fully assessed.

2.3 Methodology

Our assessment identifies scenic resources of state or national significance within an eight mile study area as defined under 35-A M.R.S.A. Section 3451(9), and evaluates the visual impact of the Project on those designated resources. The methodology to determine potential effect includes visual and cartographic analyses, document and statutory research, and site inventory and photographic review. Our approach provides a comprehensive and objective means by which to analyze and assess the potential visual and aesthetic impacts that may result from a wind power project and its associated elements. This approach has been well established by visual resource and aesthetic experts and is an accepted means by which to assess the potential visual impacts that may result from the construction of wind energy generation facilities.

2.3.1 Viewshed Analysis

A viewshed analysis has been conducted to identify areas with potential visibility. A viewshed analysis is a function of GIS software, such as ArcMap, used to study the visibility between points. It is based on the elevation values of a digital elevation model (DEM), which is a digital representation of the ground surface or topography. DEM's are represented as a raster (grid of pixels or cells), each with an assigned value, and are typically created using remote sensing (i.e. collection of data by satellite, airplane or other high altitude origin). The sharpness or accuracy of maps created from raster data depends on the size of the pixel relative to the size of the area

being mapped (i.e. the larger the pixel cell the less accurate the viewshed). Typical cell size for a DEM ranges from 10-30 meters. As such, they are generally designed for regional scale analyses.

A viewshed analysis uses the elevation value of each pixel of the DEM to determine visibility to or from a particular location. The output created from the GIS software is called a viewshed, or the area visible from a particular point of view or views. The location of this particular point or points varies depending on the needs of the analysis. For this project, 27 locations (representing turbines) were used. The GIS software estimates the difference of elevation from each of the 27 points (viewpoint, or turbines) to the next (the target, or ground). To determine the visibility of the turbines, each point (or pixel) between the viewpoint (turbine) and target (ground) is examined for line of sight. If any pixels of higher value are between the viewpoint and the target, then the line of sight is obstructed. If the line of sight is obstructed then the target is determined to not have visibility. If it is not blocked then it is included in the viewshed.

Viewshed analyses based solely on DEM data only account for topography and do not account for other possible obstructions such as buildings and trees, and therefore overstate actual visibility. Thus, when performing a viewshed analysis, several variables can be used to limit or adjust the calculation. For this project, two topographic viewsheds were completed, adding two different heights to the elevation of each viewpoint location, to determine what areas may have visibility: 1) a height of 130.5 meters to represent the tip of the turbine (Exhibit 1: Viewshed Map [topography only/from the tip]), and, 2) a height of 80 meters to represent the turbine hub (Exhibit 2: Viewshed Map [topography only/from the hub]). It is our experience that viewsheds generated from the hub provide a more realistic representation of potential visibility, since the view of a hub and rotor has a greater impact than turbine blades, and the difference in overall percent of visibility between hub and tip of the blade is usually insignificant. As such, the numbers of turbines visible and percent of visibility represented in this analysis are taken from viewsheds generated from the hub.

A topographic viewshed is the most conservative approach to identifying the maximum amount of areas with potential visibility. Therefore, two more viewshed maps were created to account for vegetation, adding a height of 45 feet in each iteration to areas identified as forest (using National Land Cover Database), which further limits and provides a better representation of potential visibility (Exhibit 3: Viewshed Map [topography and vegetation/from the tip], and Exhibit 4: Viewshed Map [topography and vegetation/from the hub]). The viewshed maps prepared for this Project do not account for other factors such as buildings and structures, actual tree height and density, site specific vegetation and/or removal, variations in eyesight, and atmospheric and weather conditions. Forested areas are assumed to have no visibility and are removed from the areas of potential visibility. There is ample precedent in New England for basing visibility and the consequent potential for visual impacts on those areas that are open, such as lakes and ponds and/or lack of forest cover, such as cleared or cultivated areas. Those areas that are forested are delineated in GIS data sets for forest cover and are typically considered to be locations where

visibility of wind projects is minimal or non-existent due to the presence of tree branching structure and canopies, regardless of whether deciduous or evergreen trees are present. This concept is well established and has been documented in studies such as *Visual Screening Potential of Forest Vegetation*,[3] which establishes the effectiveness of forest vegetation for visual screening.

The Project area surrounding the proposed Bowers Wind Project is heavily forested for the most part, and this is what limits the visibility of the Project within the 3 and 8 mile radii of the turbine locations. The exception to the lack of visibility in the forested areas might be those locations that have recently been logged or cleared for access to timber stands and have not been recorded or incorporated into the land cover data, or are at such a small scale that they do not register in the mapping process due to the coarseness of the cell size used for mapping.

Viewshed analyses are used mainly as a point of departure for identifying areas with potential visibility. Due to the coarseness and uncertainty of the quality of the raster data, viewsheds cannot be relied upon to represent what will actually be seen on the ground from a specific location. While a viewshed can indicate how many observer points can be seen from each location (i.e. 3 of 27 turbines will be visible), it can not specify how much (just the tip of a blade or the entire turbine), which one (when there are multiple observation points), or perspective (how big or small it will appear in the landscape). Therefore, a viewshed analysis provides the first step in identifying what areas might have visibility. Additional visual studies (e.g. visual simulations, line-of-sight sections) are necessary to understand the details of a view from a specific location.

2.3.2 Field Investigations

In accordance with the provisions of PL 2007, Chapter 661 and 12 M.R.S.A, §685-B(4) and §10.24, LandWorks developed a viewshed map for the Bowers project that established an 8-mile radius around the turbine array and identified all scenic resources of state or national significance within that viewshed. In total, 1 church in Springfield and 13 lakes, all located in the southern half of the 8-mile radius, were identified as scenic resources of state or national significance.

LandWorks conducted field studies on June 5, July 16, and July 17, 2010. We visited all areas with state or national significance that would have potential views of the Project, as identified in our viewshed mapping. The lakes were accessed by a guided motorboat and by canoe; the church was accessed by vehicle. Additionally, the routes to each of the areas, including sections of Route 6, Amazon Road, Bottle Lake Road, and some hiking trails and Class 4 roads to access the lakes, were evaluated to obtain a better understanding of the character of the area. LandWorks used viewshed maps, topographic maps, field guides, books, brochures, pamphlets, websites, local information sources and the Maine Atlas & Gazetteer to provide additional information

[3] Brush, Robert, Fabos, Julius and Williamson, Dennis, "Visual Screening Potential of Forest Vegetation" in *Urban Ecology* 4 (1979), pp. 207-216.

regarding the use of the areas visited, access to the sites, and to orient and determine visibility in the field. Field notes were recorded from all locations visited.

Throughout the inventories, two types of digital photographs were taken: 1) to provide information on area context and to illustrate scenic views or intervening vegetation or structures, and, 2) for the purpose of developing visual simulations. For general photographs of the project area, LandWorks used a Canon PowerShot SD850 IS set at varying focal lengths to capture the intended image (See Exhibit 5. Photo Inventory). For visual simulations, LandWorks used a Canon EOS Digital Rebel XT with a 35 mm lens for the photography and the Earthmate PN-40 GPS to collect waypoint data.

2.3.3 Visual Simulations

Visual simulations provide a photo-realistic perspective view of proposed project elements in the landscape, thereby allowing people to clearly visualize how a project will really look from a particular vantage point. Given that a photo simulation reflects what the human eye would actually see, it is a more valuable visualization tool than a plan drawing, section/elevation drawing, or other conventional 2D graphic. Visual simulations are especially valuable in terms of evaluating scale. A project element that may seem large compared to a human can actually look quite small when viewed in the landscape from a distance. A visual simulation of something like a sign could actually reveal that it is not large enough to command attention in the landscape and should be increased in scale accordingly. Visual simulations are also useful in terms of revealing potential visibility of a project from key vantage points. They often reveal how topography and vegetation can limit or block project views, sometimes in surprising ways. Visual simulations from various vantage points were prepared for this Project using the following methodology:

Step 1: Data Gathering

A. Site Visit

Site information for simulation viewpoint is recorded, including view location (GPS point), date, time and weather.

B. Site Photography

Site photographs are taken for use in simulation. Camera type, focal length (approx. 50-55mm), camera elevation, direction of view, and horizontal angle of view are noted.

Step 2: Model Creation

A. Base map & Terrain Model

A digital base map is created of the project and view areas. GIS data acquired from www.megis.maine.gov/catalog and the client; Aerial photographs and USGS maps used as needed. Utilizing the base map and GIS data, a 3D digital terrain model is created. Where forested, the terrain model is adjusted to account for the additional height contributed by trees (typically 40’-45’).

B. Turbine Model
Using data and drawings obtained from the turbine manufacturer, a 3D digital model is created of the turbine. This model is then merged with the terrain model, placing the turbines at their appropriate proposed locations and elevations.

C. View Setting
The existing conditions photograph is imported into the terrain model. The data gathered from the site visit is then inputted into the modeling program (VectorWorks 2008), and a "camera view" matching the original site conditions is created. A digital image of this view is exported for use in the next step.

Step 3: Simulation Rendering

A. Conditions Overlay
Using a photo editing and rendering program (Photoshop CS5), the exported digital image of the perspective view is precisely overlaid and registered to the original existing conditions photograph. Simulations are typically composed of panorama photos (50% overlap on either side of center frame) in order to represent the way views are actually perceived given the normal range of eye and head motion.

B. Turbine Placement
High resolution images of the turbine model (from SketchUp Pro 7) are placed at proper locations, scale and perspective to match the exported view image.

C. Final Rendering
Turbines are adjusted to mimic quality of light, distance and detail in site photograph. Vegetation and other visual obstructions are accounted for. For select visual simulations, visual impacts from associated facilities are rendered (using a perspective view created in 3D Analyst that models required project clearing) (see Exhibits 7, 8 and 10).

The weather and atmospheric conditions presented in the visual simulations depict a range of conditions experienced during our site visits. Where possible, we utilized site photos that would depict a 'worse-case' scenario in terms of lighting. Due to the changing weather of the northeast and our limited time available for site photography, not all photos depict sunny, blue-sky conditions. However, the visual simulations depict a range of weather and light conditions that are typical of the area. In some instances where the color of the sky as captured by the photograph was too light to allow the turbines to be seen in the simulation, the turbines were artificially darkened. Turbines in the simulations thus may appear more visible than they would actually appear under certain light and atmospheric conditions.

In order to mimic the perceived scale of the views in the field, the recommended viewing distance for the simulations is approximately 11".

2.3.4 Research and Publications

In order to evaluate the extent of public use for resources of state or national significance, several reference materials were gathered and include:

A. Tour Guide Services

Sunrise County Canoe Expeditions (www.sunrise-exp.com)
Wilderness Inquiry (www.wildernessinquiry.org)
Maine Guides Online (www.maineguides.com)
Almanac Mountain Outfitters (Springfield, ME)
Blue Moose Hideaway Guide Service (Lee, ME)
Grand Lake Stream Guides Association (www.grandlakestreamguides.com)
Hunting and Fishing Guides – list of members (many in Grand Lake Stream)
Canoe-Maine (Canoe Trips and Expeditions Statewide) Princeton, ME

B. Books

AMC River Guide, Maine
Quiet Water Maine: Canoe and Kayak Guide (Appalachian Mountain Club) by Alex Wilson and John Hayes
Fishing Maine Guide Book by Tom Seymour
Fishing Maine, 2nd: An Angler's Guide to More than 80 Fresh- and Saltwater Fishing Spots
Fisherman's Guide to Maine by TracewskiWind Power in View by Pasqualetti, Gipe, et al., (San Diego: Academic Press, 2002)
Landscape and Images by John R. Stilgoe (Charlottesville: University of Virginia Press, 2005).

C. Websites

www.trails.com
www.goingoutside.com
www.sunriselocations.com/cathancelake.htm
www.wildernessinquiry.org/destinations/index.php?dest=juniorlakes
www.maineguides.com
www.bluemoosehideaway.com
www.grandlakestreamguide.com
www.mainewildernesscamps.com

D. Studies and Reports

The National Forest’s Handbook on Scenery Management
Scenic Lakes Character Evaluation in Maine’s Unorganized Towns, Maine State Planning Office, December 1986
1998 Recreation Study and 2008 Relicensing Report conducted by Domtar for the West Grand Lake Watershed

"Review of the Spruce Mountain Wind Project Visual Impact Assessment", James Palmer, June, 2010
"Visual Screening Potential of Forest Vegetation" in Urban Ecology 4, Robert Brush, Julius Fabos, and Dennis Williamson, 1979
Landscape Aesthetics A Handbook for Scenery Management, United States Forest Service Agriculture Handbook Number 701, pp. 1-15 - 1-18
Critical Insights on Maine Tracking Survey: Residents' Views on Politics, the Economy & Issues Facing the State of Maine, Critical Insights, November 2009
Report to MREA: Highlights of Survey Findings, Pan Atlantic SMS Group, May 2010
Vermont Department of Public Service website on Vermont's Energy Future - http://www.vermontsenergyfuture.info/Final.
Development of Obstruction Lighting Standards for Wind Turbine Farms, James W. Patterson Jr., (For the Federal Aviation Administration, 2005)
Preliminary results of telephone user surveys conducted by Portland Research Group, January 10-18, 2011
Results of informal telephone interviews conducted by LandWorks, September and December 2010

2.4 The Effects of Distance on Views

Aesthetic experts agree that the visual impact of wind turbines diminishes over distance. They employ techniques that assess background, middleground and foreground views. The National Forest's Handbook on Scenery Management, which is based on years of research and work in the National Forest, and is relied on as a basis for visual assessment by professional and regulatory review bodies, identifies the fact that visual impact is based, in part, on the "degree of discernible detail" and that the background of a view (4 miles[4] to the horizon) has less detail, insofar as "texture has disappeared and color has flattened." The Handbook also sets forth the use of distance zones and indicates that with increased distance the "concern" level for visual impact or impacts to overall scenic integrity lessens.

In addition to "distance zones," the Forest Service also employs a concept called visual absorption capability (VAC) as a tool to assess a landscape's susceptibility to visual change caused by man's activities. In other words, it is a measure of a land's ability to absorb alteration, yet retain its visual integrity. In their report entitled "Visual Absorption Capability," they note that the most used perceptual factor in determining VAC is observation distance: "As distance from the observer to the activity increases, VAC generally increases." This is reinforced by the understanding that, with distance, an alteration in the landscape (e.g. turbine array) "takes up" less and less of the total 360-degree panorama. It follows from this that, as a project appears

[4] The Forest Service SMS uses 4 miles for the upper limit of mid-ground views while the Forest Service Visual Management System (VMS) uses 3 – 5 miles.

diminished in scale and breadth on the horizon, so is its consequent visual impact. The accompanying diagram presents this characteristic of visibility.

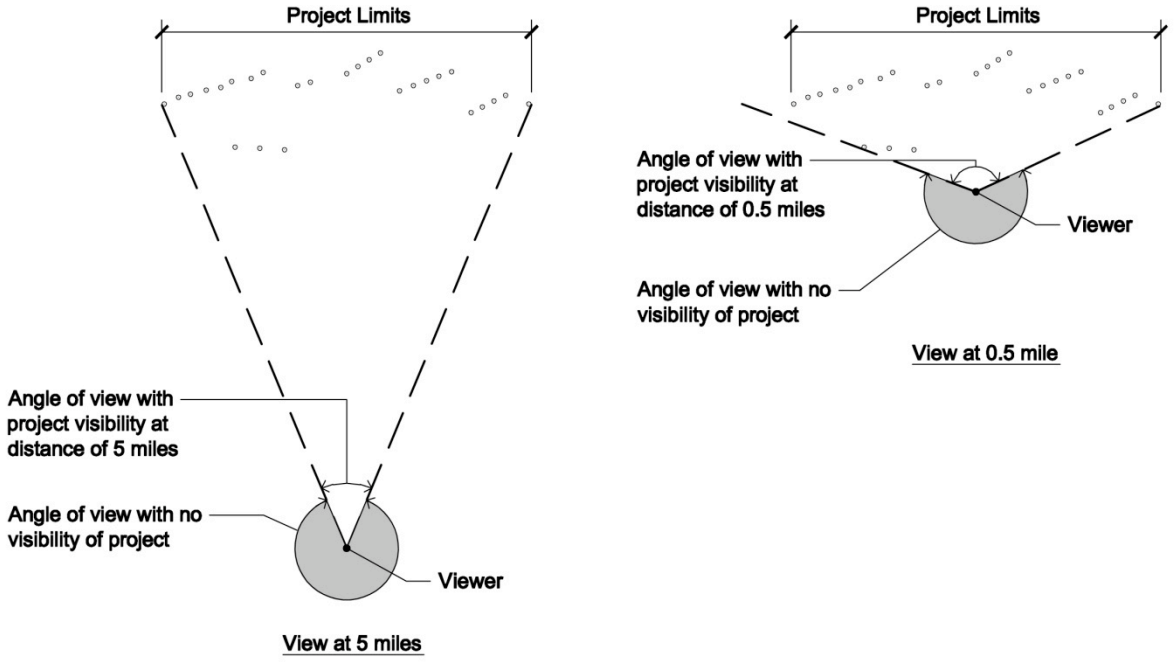


Diagram 1: Effect of Distance on View Angle

N.T.S.

As such, the use of **distance zones** is used in this Visual Impact Assessment as one methodology for helping to determine the Project's effect on scenic resources of state or national significance. This analysis uses the following classes, as derived by the work of the Forest Service, and based on our own experience with wind projects:

Foreground: 0 to 2 miles[5]

This is the distance from which details can be perceived, such as color, texture, and form. Turbines appear very large and can dominate the view. Depending on the context, the Project may have an unreasonable adverse effect on scenic values and existing uses when viewed from this distance. There are no scenic resources of state or national significance within this zone.

[5] Because turbines are larger than other elements normally viewed in the landscape, and the details of which can be perceived beyond the ½ mile limit established by the Forest Service distance zone criteria, foreground distance in this assessment have been extended out to 2 miles.

Middleground: 2 to 5 miles

This is the distance at which landscapes are predominantly seen. Individual forms are still distinguishable, such as trees or large boulders, but are generally viewed as a mass or part of the broader landscape. Color, texture, and other details become subordinate to the greater whole. With increasing distance, turbines will appear smaller and smaller. At 5 miles, turbines will be visible, but will not dominate the view since they are viewed as a part of the overall landscape. However, visual impact must be determined on a case-by-case basis to account for distance, context, landform, human activities, and other contributing features.

Background: Beyond 5 miles

This is the part of the landscape that is usually outside the viewer's area of interest. Texture is no longer distinguishable and color is invariable. Ridgelines and horizon lines are the prevailing visual characteristics. Intervening and/or nearby visual conditions, development and landscape elements reduce the eye's tendency to focus on more distant objects in the background. Atmospheric conditions may limit the maximum viewable distance to about 8 miles or less. The visibility of individual blades, which are usually around 6 feet plus or minus at their widest point, and the entire rotor assembly, is diminished and difficult to see when still or spinning beyond 6 miles. The perceived size of turbines at this distance is greatly reduced, rendering them less prominent and generally making them inconsequential in the overall view.

3. Project Purpose and Context

3.1 Project Description

3.1.1 Wind turbines

Multiple turbine models are being considered for the civil and electrical design described in the permit application. For purposes of this Visual Impact Assessment, the tallest turbine model was incorporated using the Siemens 2.3 MW turbine model, which is 262'-6" (80 m) to the center of the hub, and a total of 428 feet (130.5 m) to the tip of a fully extended blade. Up to nineteen of the turbines will be located in Carroll Plantation, while the remaining eight will be in Kossuth Township. The turbines will span from Bowers Mountain across to Dill Hill. Following construction, all but a typical 0.43 acre at each turbine pad will be revegetated by both seeding and natural revegetation.

3.1.2 Access roads

The access road for the Project, beginning at Route 6, is 20 feet in width. Between turbines, portions of the access roads will be 35 feet in width to accommodate the crane during construction. Many of the proposed turbine sites and portions of the Project area have been or are being used for commercial forestry operations and the Project area contains logging roads that will be upgraded and used, where appropriate, to minimize new construction, clearing and wetland impacts. Roads are sited to work with the existing topography and therefore minimize cut and fill. In most instances, existing mature trees will screen views of the roads.

3.1.3 Electrical Collection System / Substation

Power from the turbines will be collected in an overhead 34.5-kV collector line between turbines and delivered north across Route 6 along an "express" collector route to a proposed substation located adjacent to the existing Line 56 transmission line in Carroll Plantation. The poles for the electrical collection lines between turbines will range from 35 to 60 feet high, and require approximately 80 feet of clearing in areas between turbine locations. The poles for the "express" collector will be north of the ridgeline and primarily north of Route 6 and will not be visible from scenic resources of state or national significance.

3.1.4 Operations and Maintenance Facility

An O&M building of approximately 7,000 square feet is planned for a location north of Route 6. This single-story building will provide combined warehouse and office space and will be painted a neutral color to blend with its surroundings. The O&M building will be north of Route 6 and will not be visible from scenic resources of state or national significance.

3.1.5 Meteorological Towers

There will be up to 4 permanent meteorological towers. The permanent towers will be 80-meters high (263 feet) by approximately 18" wide. Due to their narrow profile and light color, their visibility is relatively minimal.

3.1.6 Project Lighting

The wind turbines will be illuminated in accordance with FAA recommendations for turbine lighting in order to address aviation safety. Based on the Lighting Plan (see Applicant's Exhibit 8), approximately 50% of the turbines will be lit at night. According to the governing FAA standard[6], the lights typically used are omni-directional, L-864 Red Flashing Lights (incandescent or rapid discharge [strobe]) with a minimum 750 candela with a 3-degree vertical beam spread. Due to the limited vertical beam spread, the visual impact from these lights is reduced - typically viewers do not see these lights directly and they do not produce glare as they are designed to be visible primarily to aircraft and not to viewers on the ground. In addition, the visibility of these lights will be mitigated by the distance of the lights from potential viewing related to any historic or scenic resources that are identified elsewhere in this assessment.

3.2 Character of the Area

The proposed Project is part of five hills ranging in elevation from 750 to 1120 feet above sea level and consist of moderately steep to gentle sloping sides. The relief as viewed from lakes in the area is not dramatic or unique. All of these rolling hills are located directly south of Route 6 and cross the town boundary from Carroll to Kossuth. Together they form a divide between stream drainages to the Baskahegan Stream in the north, and to streams flowing to lakes and ponds in the south. This area is identified as the Eastern Lowlands biophysical region[7], which is primarily dominated by a regenerating Beech-Birch-Maple forest.

Much of the land in the study area is privately owned and has been heavily harvested, showing evidence of historic and recent forest management activity (see Diagram 2). There are also a number of publicly and privately conserved lands in the 8-mile study area. Located in the southeastern part of the study area are portions of the Sunrise Conservation Easement, which maintains the land forever in its present and historic primarily undeveloped condition to allow its continued operation as a working forest with the perpetual ability to produce forest products, as well as to conserve and/or enhance forest and wildlife habitats, undeveloped shoreline, and historic public recreation opportunities for present and future generations. The nearly 39,000 acres of Sunrise land within the 8-mile viewshed is still owned by Typhoon, LLC and managed by Wagner Forest Management. In addition to the Sunrise easement land, the Bureau of Parks and Lands (BPL) owns a roughly 890-acre lot of public reserved land situated between Keg and

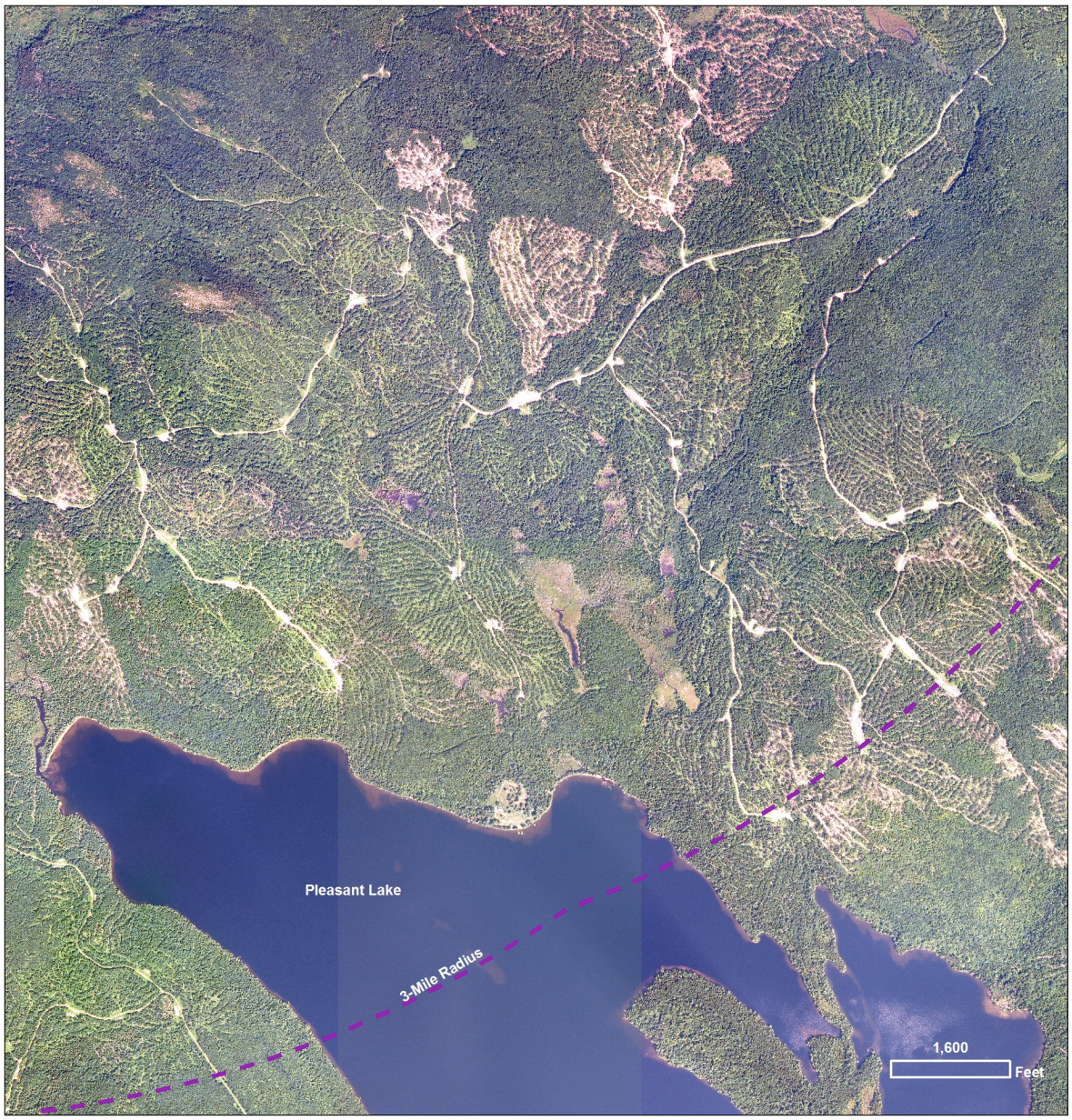
[6] U.S. Department of Transportation Federal Aviation Administration. Obstruction Marking and Lighting Chapter 13, February 2007.
[7] Maine State Planning Office, 1993.

Duck Lakes. Currently, the lot is managed primarily for forestry and wildlife related uses. There are a few interspersed private residential dwellings along the shore, but no campsites or public boat launches on the property and only dispersed hunting and fishing activity, but there is potential for recreational development. The Town of Lakeville has expressed interest in participating in recreational management on an ongoing basis, but not at this time. In addition, there are two Native American lands within the study area – the Passamaquoddy in Pukakon Township and the Penobscot in Lakeville.

This region of Maine is most notably known for its very low population, undeveloped areas, prime wildlife habitat and vast woodlands. It is a working landscape on which the region's residents have depended for centuries, including the harvesting and processing of forest products, evidence of which can be seen in the hillsides and the network of logging roads throughout the area. There is also some evidence of farming in the region, with a few open fields found along Route 6. Likewise, most of the development, which is predominantly residential, is located along this key road. All of the region's major employment centers, like Lincoln, are relatively far. The immediate area around the Project Site is used locally but is not a popular destination area for tourism. Thus, most of the commercial and retail activity is found outside the study area.

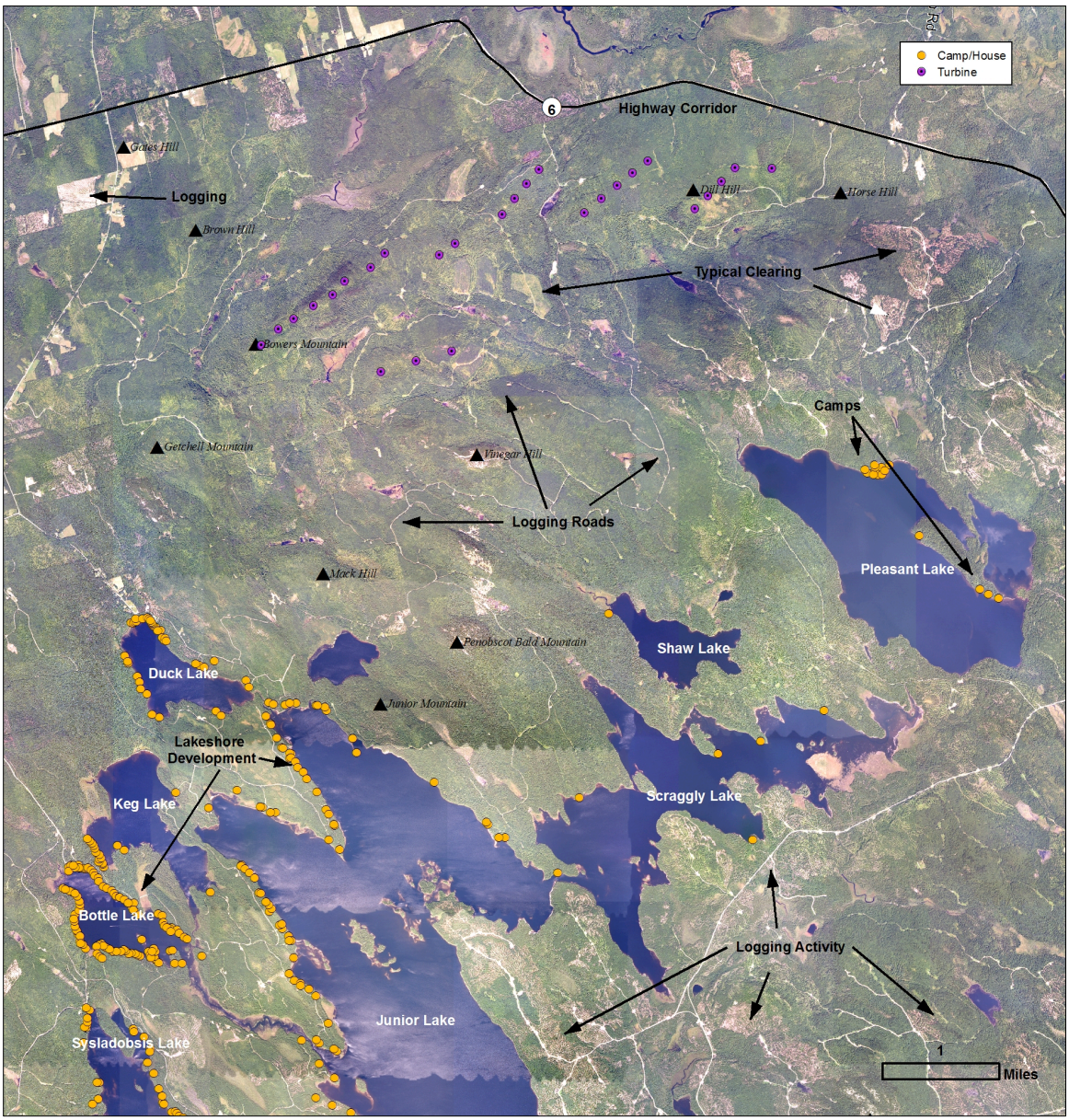
In general, residential development is very low density, scattered amongst open fields and roadside clearings. For example, the population for Carroll Plantation from the 2000 census was 144, with a population density of only 3.3 people per square mile. This compares to the Penobscot County average of about 43 people per square mile. The only area of somewhat concentrated density is in the settled area of Springfield, approximately 5 miles from the closest turbine, where there is a church, school and grocery. Much of the region, however, is characterized by seasonal camps scattered throughout the area (see Diagram 3). Bottle Lake features the highest number of camps and homes along the water's edge, with some scattered residential development found along the shores of the other lakes in the area including Keg, Lombard, Sysladobsis, Upper Sysladobsis, Junior and Duck Lakes. Many of these are occupied for limited periods of time, primarily for hunting and fishing. In fact, the most identifiable activities for this area, aside from forestry, include snowmobiling, hunting, boating and fishing. In the 8-mile study area there are several boat launches, a number of primitive campsites, and a network of snowmobile and ATV trails including access to Maine's Interconnected Trail System. Compared to other regions of the state, this area has a minor road network and traffic volumes remain very low. The area's primary roads include Route 6, which runs east-west just north of the Project Site, Routes 170/169, which head north from Springfield, and a network of unimproved logging and other access roads. In fact, most of the activity along these roads is for forestry related purposes, and carry much of the logging truck traffic. The majority of roads are set within the surrounding topography, trees, and vegetation, which constrain views of the Project and provide limited long distance views of the regional landscape.

Diagram 2. Logging Activity



This aerial photo illustrates the extensive logging and associated clearing and access roads seen throughout the region

Diagram 3. Existing Land Use



4. The Visual Impact Assessment

4.1 Visual Impacts on Resources of State or National Significance

In determining whether a Project has the potential for significant adverse effects, the Maine Wind Power Law defines what constitutes a "scenic resource of state or national significance":

> *"Scenic resource of state or national significance" means an area or place owned by the public or to which the public has a legal right of access that is:*
> *A. A national natural landmark, federally designated wilderness area or other comparable outstanding natural and cultural feature, such as the Orono Bog or Meddybemps Heath; [2007, c. 661, Pt. A, §7 (NEW).]*
> *B. A property listed on the National Register of Historic Places pursuant to the National Historic Preservation Act of 1966, as amended, including, but not limited to, the Rockland Breakwater Light and Fort Knox; [2007, c. 661, Pt. A, §7 (NEW).]*
> *C. A national or state park; [2007, c. 661, Pt. A, §7 (NEW).]*
> *D. A great pond that is:*
> *(1) One of the 66 great ponds located in the State's organized area identified as having outstanding or significant scenic quality in the "Maine's Finest Lakes" study published by the Executive Department, State Planning Office in October 1989; 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" published by the Maine Land Use Regulation Commission in June 1987; [2007, c. 661, Pt. A, §7 (NEW).]*
> *E. A segment of a scenic river or stream identified as having unique or outstanding scenic attributes listed in Appendix G of the "Maine Rivers Study" published by the Department of Conservation in 1982; [2007, c. 661, Pt. A, §7 (NEW).]*
> *F. A scenic viewpoint located on state public reserved land or on a trail that is used exclusively for pedestrian use, such as the Appalachian Trail, that the Department of Conservation designates by rule adopted in accordance with section 3457; [2007, c. 661, Pt. A, §7 (NEW).]*
> *G. A scenic turnout constructed by the Department of Transportation pursuant to Title 23, section 954 on a public road that has been designated by the Commissioner of Transportation pursuant to Title 23, section 4206, subsection 1, paragraph G as a scenic highway; or [2007, c. 661, Pt. A, §7 (NEW).]*
> *H. Scenic viewpoints located in the coastal area, as defined by Title 38, section 1802, subsection 1, that are ranked as having state or national significance in terms of scenic quality in:*
> *(1) One of the scenic inventories prepared for and published by the Executive Department, State Planning Office: "Method for Coastal Scenic Landscape Assessment with Field Results for Kittery to Scarborough and Cape Elizabeth to South Thomaston,"*

Dominie, et al., October 1987; "Scenic Inventory Mainland Sites of Penobscot Bay," Dewan and Associates, et al., August 1990; or "Scenic Inventory: Islesboro, Vinalhaven, North Haven and Associated Offshore Islands," Dewan and Associates, June 1992; or (2) A scenic inventory developed by or prepared for the Executive Department, State Planning Office in accordance with section 3457. [2007, c. 661, Pt. A, §7 (NEW).] [2007, c. 661, Pt. A, §7 (NEW) .]

A summary of scenic resources of state or national significance within an eight-mile radius is provided in Table 1 below. Detailed descriptions and evaluations for each resource follow.

Table 1. Summary of Resources of State or National Significance Within 8 Miles

	Town	Status [Significant (S), Outstanding (O)]	Distance to Nearest Visible Turbine[1]	# of Turbines Visible within 8 Miles[1] (27 total)
GREAT PONDS				
Within 3 miles of the Project				
Duck Lake (0.41 sq. mi.)	Lakeville	State (S)	2.7 mi.	0-18
Junior Lake[2] (6.25 sq. mi.)	T5 R1 NBPP	State (S)	2.99 mi.	0-23
Pleasant Lake[3] (2.42 sq. mi.)	T6 R1 NBPP	State (O)	2.16 mi.	0-27
Shaw Lake[4] (0.39 sq. mi.)	T6 R1 NBPP	State (S)	2.6 mi.	0-25
Within 3-8 miles of the Project				
Bottle Lake (0.40 sq. mi.)	Lakeville	State (S)	5.1 mi.	0-13
Horseshoe Lake (0.206 sq. mi.)	Lakeville	State (S)	NA[5]	0
Keg Lake (0.58 sq. mi.)	Lakeville	State (S)	3.78 mi.	0-18
Lombard Lake (0.43 sq. mi.)	Lakeville	State (O)	NA	0
West Musquash Lake (2.05 sq. mi.)	T6 R1 NBPP	State (O)	NA	0
Norway Lake (0.19 sq. mi.)	T5 R1 NBPP	State (S)	NA	0
Scraggley Lake (2.56 sq. mi.)	T6 R1 NBPP	State (S)	3.3 mi.	0-26
Sysladobsis Lake (1.08 sq. mi.)	Lakeville	State (S)	6.34 mi.	0-22
Upper Sysladobsis Lake (1.62 sq. mi.)	Lakeville	State (S)	NA	0
NATIONAL REGISTER OF HISTORIC PLACES				
	Town		**Project Visibility**	
Springfield Congregational Church	Springfield		None	

[1]Based on Exhibit 4: Viewshed Map (topography and vegetation/from the hub)
[2]An insignificant portion of the lake is within the 3-mile radius - only about 350 feet from the northern shoreline.
[3]About 1/3 of the lake is within the 3-mile radius.
[4]A little over 1/3 of the lake is within the 3-mile radius.
[5]NA=Not Applicable due to no visibility within 8 miles

4.1.1 National Natural Landmarks

There are no National Natural Landmarks, federally designated wilderness areas or other comparable outstanding natural or cultural features within 8-miles of the Project.

4.1.2 National Register of Historic Places

There is one property within the 8-mile radius of the Project that is listed on the National Register of Historic Places: Springfield Congregational Church. The gothic revival church, built in 1852, is located along Route 6 in Springfield, approximately 5 miles from the nearest turbine. There will be no visibility of the Project from this location due to intervening topography and surrounding vegetation.

4.1.3 National or State Park

There are no National or State Parks within 8-miles of the Project.

4.1.4 Segment of River or Stream

There are no segments of rivers or streams of state or national significance within 8-miles of the Project.

4.1.5 Scenic Viewpoint

There is state land on shores of other scenic resources of state or national significance, but there are no scenic viewpoints located on state public reserved land or on a trail that is used exclusively for pedestrian use designated by the Department of Conservation within 8-miles of the Project.

4.1.6 Scenic Turnout

There are no scenic turnouts constructed by the Department of Transportation of state or national significance within 8-miles of the Project.

4.1.7 Scenic Viewpoints in Coastal Areas

There are no scenic viewpoints in coastal areas, as defined by Title 38, section 1802, subsection 1, within 8-miles of the Project.

4.1.8 Great Ponds

There are four great ponds located within 3-miles of the Project, and nine within 3-8 miles that are listed in one of the two designated state inventories ("Maine's Finest Lakes" study or "Maine Wildlands Lakes Assessment") as having outstanding or significant scenic quality in accordance with 35-A M.R.S.A. Section 3452. Five of these lakes do not have any visibility of any turbine within eight miles and include Horseshoe, Lombard, West Musquash, Norway and Upper Sysladobsis Lakes. An evaluation of the potential impact to the other 8 lakes with visibility within 8 miles was conducted using the Maine Wind Power Law criteria, which include:

Significance - The significance of the potentially affected scenic resource of state or national significance;

Character - The existing character and context of the surrounding area;

Use - The expectations of the typical viewer and 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 (Note that a general description of use is provided under each lake and then a detailed evaluation of expectations is provided in 4.2); and,

Visibility - 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. Bottle Lake

Significance

Bottle Lake is identified as Significant with a Management Class[8] of 5[9]. Relief, shoreline configuration, and vegetation diversity are characterized as low, physical features are medium, and there are no special features[10].

Character

Bottle Lake, located in the town of Lakeville within Penobscot County, is approximately 258 acres, all of which are located within 8 miles of the Project. This lake is located 4.7-5.3 miles from the nearest proposed turbine. Mixed forest cover and low-lying hills and mountains surround the lake. Views to the northwest are most prominent, with Lombard and Almanac Mountains relatively nearby and visible. From the southwestern edge of the lake a small portion of Bowers Mountain is visible above the intervening ridge.

The general character of Bottle Lake can be described as a rural recreational, developed lake. It is the most densely developed lake within the Project study area with roughly 100[11] camps or

[8] Management classes from 2010 Comprehensive Plan Appendix C – Lake Management Program
[9] 2 Esp high value, accessible, undeveloped
4 High value, developed lakes
5 Heavily developed lakes, approaching heavily developed status
7 All lakes not otherwise designated
[10] Based on ranking provided in Scenic Lakes Character Evaluation in Maine's Unorganized Towns, Maine State Planning Office, December 1986. Findings from this report were used to identify which lakes were ranked as Outstanding or Significant in the Maine Wildlands Lake Assessment.
[11] Structures were identified by Stantec based on the 2009 NAIP imagery for Penobscot and Washington counties as well as the 24K USGS quads, and LURC parcel maps.

homes concentrated around most of the shoreline. Much of the older camps or homes are relatively modest, while the newer camps, interspersed throughout the lake, are larger and more pronounced. Many of the camps are close to the shore with little intervening tree screening, and are quite visible. Private docks and recreational equipment can be seen near the water's edge in several locations. In addition, power lines are visible from the lake at a few locations along the shoreline. They can be seen in one area over a wetland marsh near the northeastern shoreline of the lake, just south of the boat launch; and over a wetland marsh area, paralleling Bottle Lake Road. A communication tower located on top of Almanac Mountain is also visible from the lake.

View towards Bottle Lake Boat Launch

View of Almanac Mountain from Bottle Lake

Use

Boating, water skiing, paddling, fishing and swimming are the predominant recreational uses. Bottle Lake is joined to Junior Lake to the southeast via Bottle Lake Stream. This stream is a wide, shallow, marshy channel passable by motorboats when seasonal water levels are high, and passable only to kayaks and canoes when seasonal water levels are low. This lake can also be accessed by a public motorboat launch, located at the northwest end of the lake, at the end of Bottle Lake Road. In addition, paddlers can also use Bottle Lake as a means of accessing a half-mile portage to Sysladobsis Lake (Lower). No public camping areas have been identified. Due to the amount of residential development on the lake, and the fact that Bottle Lake is the principal access point for people wanting to visit Junior Lake and other connected lakes, it experiences some of the highest use in the 8-mile viewshed.

Visibility

According to the viewshed map, up to 13 turbines may be visible from the southern shore of Bottle Lake. At over 5 miles away, these turbines would be considered background views. The majority of the lake would have no visibility of the Project. From portions of the southern shore, the six southern turbines on Bowers Mountain would be clearly visible, although the ridge itself is barely visible above the shoreline trees (see Exhibit 6: Visual Simulation from Bottle Lake). These six turbines would take up a very narrow portion of the overall viewshed. For the remaining potentially visible turbines, only small portions of them,

such as a blade, might be visible just above the tree line. Fewer turbines would be visible as you travel toward the Project site due to intervening shoreline vegetation. From the center of the lake and north, no turbines would be visible. There would be no visibility from the public boat launch.

The viewer's eye would be drawn more to distinct hills to the northwest, including Almanac Mountain with a communications tower clearly visible. As noted, the terrain of the Project site is barely visible and the overall view in that direction is defined by a rather flat and undifferentiated landscape with highly visible homes and power lines along the northern shore. These factors, combined with the limited visibility, serve to minimize the visual impacts of the Project from this lake.

B. Duck Lake

Significance
Duck Lake is identified as Significant with a Management Class approaching 5. Relief and shoreline configuration are characterized as low, physical features are medium, and there is no vegetation diversity or special features.

Character
Duck Lake, located in the town of Lakeville within Penobscot County, is approximately 262 acres, all of which are within 8-miles of the Project. This lake is one of the closet lakes to the Project site, second to Pleasant Lake, and is located 2.5-3.2 miles from the nearest proposed turbine. Mixed forest cover and low-lying hills and mountains surround this lake, and the shoreline is wooded and interspersed with marsh areas. The lake is joined to Junior Lake to the south by a narrow stream. From the southern shoreline, the top of Bowers Mountain is visible just above the intervening tree lined ridge. The most prominent topographic feature from Duck Lake is nearby Getchell Mountain to the north. A communications tower located on Almanac Mountain is also visible above a nearby ridge to the southwest.


Residential development along Duck Lake's northern shore

A fair amount of camp or home development can be found on this lake, with approximately 37 structures, and the highest density in the vicinity of the boat launch along the northern shore. The character and size of these camps or homes vary. Some of the newer camps are quite large and visible, while others are small, secluded and screened by vegetation. Many camps have private, visible docks. Approximately three quarters of the shoreline is privately owned and developed. The remaining quarter, located along the

western shore, is designated as Maine Public Reserved Land, but is interspersed with private residential development.

Use
Boating, paddling, and fishing appear to be the predominant activities on this lake. A motorboat launch located at the northwest end of the lake, at the end of Duck Road, provides public access. Kayaks and canoes can also access this lake from Junior Lake via a narrow stream connection at the southeast end of the lake, although its seasonal navigability is unknown. The lake's warm water temperatures, which are not conducive to an abundance of desirable coldwater species such as salmon and brook trout, discourages the use of Duck Lake as a fishing destination. Based on its relatively small size and less than desirable fishing quality, this lake is most likely used by camp owners and experiences low to moderate use.

Visibility
According to the viewshed map, up to 18 turbines may be visible from the southern cove of Duck Lake. From portions of the southern cove, the six southern turbines on Bowers Mountain would be clearly visible in the middleground at a distance of approximately 3-4 miles (see Exhibit 7: Visual Simulation from Duck Lake). From this vantage point, only the top portion of Bowers Mountain is visible from Duck Lake, and it is dwarfed by the closer and taller form of Getchell Mountain. In addition, the eye is drawn to more distinct hills within view to the east, including Penobscot Bald Mountain (with highly visible ridgeline logging) and Junior Mountain. The six most visible turbines would take up a very narrow portion of the overall viewshed. For the remaining potentially visible turbines, only small portions of them, such as a blade or portion of a rotor, might be visible just above the tree line (see Exhibit 7). Fewer turbines would be visible as you travel toward the Project site due to intervening shoreline vegetation. From the public boat launch, the viewshed map indicates that there could be potential visibility of 1-6 turbines, although it is likely that only the blades would be visible, if at all. The presence of camp and home development along the northern shore serves to lessen any potential visual impacts when viewed from the boat launch or other locations throughout the lake.

C. Junior Lake

Significance
Junior Lake is identified as Significant with a Management Class of 7. Relief is characterized as low, physical features, shoreline configuration, and vegetation diversity are characterized as medium, and there are no special features.

Character
Junior Lake, located in Lakeville and Pukakon Twp, is one of the largest lakes in the 8-mile region at approximately 4,000 acres and nearly 29 miles of shoreline. The character of this lake is not unique to the region with low hills and mixed forest cover. The scenery of the surrounding

landscape is generally indistinct, except for views to the west-northwest, which include Almanac Mountain, Lombard Mountain, and Dill Ridge. A number of rocky islands in the vicinity of McKinney Point add visual interest to the landscape.

Junior Lake has seen much development in recent years, and there are approximately 87 camps and homes on large lots along the shoreline, many of which are along the western shore. These structures are generally set back from the shore and somewhat obscured by shoreline vegetation. Private docks, play equipment, and patio furniture can be seen near the water's edge in some locations. Although not terribly obtrusive due to setbacks, the residential development on the western shore gives that side of the lake a more developed feel than the eastern side of the lake. Wild Fox Resort and sporting camp is located at the southeast corner of the lake in a secluded bay, but it is no longer conducting business regularly. Evidence of logging on nearby ridges is visible.

Looking west at the Big Islands near McKinney Point

Use

Fishing, boating, paddling, swimming and camping are the primary recreational uses of the lake. Locals tend to fish here, and there is a relatively high amount of recreational boating, especially when motorboat access is possible from Bottle Lake Stream in late spring early summer. According to one website source, "it is almost impossible to fish this lake without a boat."[12] Paddlers can also take advantage of the approximately seven primitive campsites accessible to the public on Junior Lake or connect to other nearby lakes. Junior Lake does not have any public boat launches, but it can be accessed from the public boat launch at Bottle Lake via Bottle Lake Stream. This passage becomes difficult or impossible for motorboats in mid to late summer as the water level drops. As with the connection to Scraggly Lake, this continues to be a viable paddling connection for canoes and kayaks throughout the season. Junior Lake can also be accessed by boat via Junior Stream, which

Typical shoreline development along Junior Lake

[12] www.trails.com/tcatalog_trail.aspx?trailid=XFA051-060

connects to Junior Bay. Access from Duck Lake may be possible for kayaks and canoes via a narrow stream connection at the northern tip of the lake.

Visibility
According to the viewshed map, up to 23 turbines could potentially be visible from the southern portion of the lake, while the number of visible turbines decreases when traveling north on the lake. At over 5 miles long, and stretching away from the Project site, the character of the Project's visibility differs noticeably depending of the position of the viewer. Although more turbines are visible from the southern half of the lake, these represent background views. From the northern half of the lake, fewer turbines are visible but they represent middleground views. From the southern end of the lake, a wide panorama of hills is visible to the north, with Getchell Mountain and Penobscott Bald Mountain appearing more distinct than the Project ridges. Because the lake is so large, the landscape has a feeling of expansiveness when viewed from the water. As such, the landscape is capable of visually absorbing the views of the proposed Project without undermining its essential visual qualities. Even from the northwest shore of the lake, where the majority of camps and homes are located, the turbines do not dominate the view due to the relationship between the number/scale of visible turbines and the topography (see Exhibit 8: Visual Simulation from Junior Lake). The presence of some large shoreline homes within the viewshed are a visual reminder that it is not a pristine landscape.

Although a considerable portion of the lake has potential visibility of the Project, there are a number of areas that provide visual isolation, including the northern and eastern shorelines and the many islands on this lake. The islands in fact represent perhaps the most striking feature of the lake, and the visual appreciation of this foreground feature would be unaffected by middleground or background views of turbines. The publicly accessible campsite on McKinney Point would continue to have views of the Big Islands and the distinct landform of Almanac Mountain, while no turbines would be visible from that vantage point. The other island campsites were not visited to confirm visibility of the Project site, but it is likely that they will not have visibility as well due to intervening vegetation.

D. Keg Lake

Significance
Keg Lake is identified as Significant with a Management Class of 7. Relief and shoreline configuration are characterized as low, physical features are medium, and there is no vegetation diversity or special features.

Character
Keg Lake, located in the town of Lakeville within Penobscot County, is approximately 371 acres, all of which are located within 8-miles of the Project. This lake is located 3.6-5.1 miles from the nearest proposed turbine. The character of Keg Lake is similar to adjacent Duck Lake, with

mixed forest cover, low-lying hills and less extensive development. The western cove of the lake has moderately dense development, with about 15 camps or homes, while the remaining shoreline is largely undeveloped.

Use

Boating, fishing, and paddling are the primary activities on this lake. It is connected to Bottle Lake to the south via a narrow, long marshy stream, which provides a seasonally navigable passage by kayaks and canoes. However, Bottle Lake Road spans over the stream, limiting boat connections between the two lakes. Passage under this road at this location only allows for small boats, if any. Portage may be necessary. As there is no designated parking area at this bridge or clear area to launch a paddling or small motorboat, it is assumed this is not a designated public boat access site. There is another unofficial canoe carry access at Lakeville Shore Road, but, again, there is no public parking. There are no other identified public boat launches on the lake. Due to limited public access, including no public boat access or designated public parking or camping areas, the lake is primarily used by private camp owners. Moreover, as this lake supports predominately warm water fish, and does not stock coldwater fish due to the lack of suitable habitat, Keg Lake is not considered a fishing destination and receives very low use overall.

View from the western shoreline of Keg Lake looking north toward Getchell Mountain

Visibility

Based on the viewshed analysis, up to 18 turbines might be visible from the western cove of Keg Lake as middleground and background views. Overall, this still represents a relatively limited percentage of the overall view. As seen in Exhibit 9: Visual Simulation from Keg Lake, the 10 southernmost turbines on Bowers Mountain are clearly visible, as are the three turbines on 'South Peak.' Only the blades of several turbines on Dill Hill appear to have potential visibility. Depending on the viewer's position, Getchell Mountain and/or Penobscot Bald Mountain would remain visually dominant due to their height and mass. There are a number of areas within the lake without project visibility, notably along the northern shore and on the eastern side of the lake. Due to challenging public access to Keg Lake, the visual impact would be primarily to owners and visitors of camps and homes along the southern shore.

E. Pleasant Lake

Significance

Pleasant Lake is identified as Outstanding with a Management Class of 2. Relief and shoreline configuration are characterized as low, and physical features, vegetation diversity, and special features are medium.

Character

Pleasant Lake, located in Kossuth Twp and T6 R1 NBPP, is approximately 1,550 acres and situated between 2-5 miles from the nearest proposed turbine. The scenery and topography visible from the lake is typical of the region with low rolling hills and mixed forest cover. It has a pleasant, but not dramatic or unique, scenic quality. The shoreline is undeveloped, aside from Maine Wilderness Camps and a few camps along the eastern shore, with a mix of white cedar and other evergreen trees. Evidence of logging is visible on nearby Bowers Ridge, and aerial photographs indicate logging activity in extensive areas around the lake, most notably in the vicinity of the Project site (see Diagram 2). Accessing Pleasant Lake from Amazon Road, which clearly serves as a major access road for logging, also sets a tone of being in a working landscape.

View from the public boat launch at the southeastern corner of Pleasant Lake

Use

Primary uses of the lake include fishing, boating, paddling, and camping. According to phone interviews[13] conducted by LandWorks, Pleasant Lake gets a moderate amount of use for the area and is used mostly by fishermen. With Maine Wilderness Camps on the northern shore, which offers canoe outfitting and boat rentals, it is certain that there are a number of people who also take rental boats (including motor boats) out on the lake and some who embark on canoe camping trips from this point. A short portage is required to access Scraggly Lake to the south and thereby enter the Grand Lake Chain of Lakes, over 40 miles of connected lakes and ponds. At the southern shore off of Amazon Road, there is a public boat launch with an adjacent maintained forest campsite with picnic tables accessible to the public. The access road is approximately 6 miles from Route 6. On the northern shore is a private boat launch at Maine Wilderness Camps.

[13] Telephone interviews conducted by LandWorks, September and December 2010

Visibility

Based on the viewshed analysis, up to 27 turbines, or portions of turbines, may be visible at the southeastern end of the lake as middleground views. Due to orientation and intervening vegetation, no views of the Project are expected from Maine Wilderness Camps, a private campground and lodge. From the public boat launch, the closest turbine visible will be on Dill Hill 4.5 miles away, and the farthest on Bowers Mountain 6.6 miles away (see Exhibit 10: Visual Simulation from Pleasant Lake Boat Launch). From this view, an intervening ridge blocks a portion of Bowers Mountain, and only a sliver of Dill Hill is visible above the hills southeast of Dill Hill. This has the effect of visually reducing the height of many turbines since only small sections of their towers are visible. When traveling toward the Project, these turbines would become more obscured by intervening topography and fewer would be visible when approaching the northwestern shore (see Exhibit 11: Visual Simulation from Pleasant Lake, Near Northern Shore), with no visibility along the northern shoreline. Visual isolation would also be possible within portions of Dark Cove, which is considered to be the most desirable section of the lake for paddlers.

F. Scraggly Lake

Significance

Scraggly Lake is identified as Significant with Management Class of 7. Relief and physical features are characterized as low, shoreline configuration is medium, vegetation diversity is high, and there are no special features.

Character

Scraggly Lake is approximately 1,641 acres and between 3-6 miles from the nearest proposed turbine. The scenery and topography visible from the lake is typical of the region, with low rolling hills, mixed forest cover, and marshy coves, while the irregularity of the shoreline and the presence of some small islands does add a level of visual interest. While the lake is only 3.5 miles long, the varied shoreline extends nearly 20 miles through marshy coves and remote islands. There is a hand-carry boat/canoe launch at Hasty Cove off of Amazon Road. Located approximately 9 miles from Route 6, the access road to the boat launch is very rough and requires a high-clearance, off-road vehicle. Scraggly Lake can also be accessed by boat via Junior Lake, although this narrow passage is shallow and rocky and thus most suitable for small watercraft such as kayaks and canoes. The lake is also accessible from a half mile or less portage from Pleasant Lake. The difficulty in accessing the lake and limited development along the shoreline creates a feeling of remoteness. Evidence of logging is visible on nearby Bowers Ridge, and aerial photographs indicate logging activity in extensive areas around the lake, most notably in the vicinity of the Project site. Accessing Scraggly Lake from Amazon Road, which clearly serves as a major access road for logging, also sets a tone of being in a working landscape.

Use

Scraggly Lake sees a moderate amount of fishing, boating, paddling, and camping. There is one hand-carry boat launch on the eastern shore, and motorboat access is only possible by connecting through Junior Lake. Although bass fishing is particularly good at this lake, paddlers are more common due to access issues. Quoting one website "…wild and remote, this is the paddler's ideal lake: too shallow for most motorboaters and far enough from road access that you have to do some work to get here."[14] Scraggly Lake is connected to the Grand Lake Chain of Lakes, and camping is available at three primitive sites accessible to the public.

The varied shoreline of Scraggly Lake

Logging activity is evident on the approach to many of the lakes, particularly along Amazon Road

Visibility

The viewshed map indicates that northwest views may have visibility of up to 26 turbines, primarily as middle to background views. There are direct views of Bowers Mountain from the boat launch, but Dill Hill is not visible, where approximately 8 turbines are proposed. As such, none of these turbines would be visible from this vantage point. From the majority of the lake, Penobscot Bald Mountain represents the tallest and most distinct landform when looking toward the Project, thereby drawing the eye. Vinegar Hill and the unnamed hill northeast of it completely or partially block views of some turbines on Bowers Mountain, serving to visually break-up views of the Project. Shoreline vegetation obscures portions of the turbines on Dill Hill as well, thereby lessening their visual impact (see Exhibit 12: Visual Simulation from Scraggly Lake).

Scraggly Lake has a complex shoreline with several coves, many of which would provide visual isolation from the turbines. The numerous wooded islands would also buffer or block views of the Project, and the enjoyment of their picturesque qualities would not be undermined. Few to no turbines would be visible when approaching the northern shore of the lake due to intervening topography and vegetation.

[14] http://www.trails.com/tcatalog_trail.aspx?trailid=CGN022-047

G. Shaw Lake

Significance

Shaw Lake is identified as Significant with a Management Class of 7. Relief and shoreline configuration are characterized as low, physical features and vegetation diversity are medium, and there are no special features.

Character

Shaw Lake, located in the townships of T5 R1 within Penobscot County and T6 R1 within Washington County, is approximately 251 acres, all within 8-miles of the Project. This isolated lake is located 2.5-3.7 miles from the nearest proposed turbine. The landscape and topography around this lake is typical of the region with only a few, low rolling hills visible. A relatively horizontal ridge, visible jut above the tree line, defines the majority of the long distance views to the north. Mixed forest characterizes the hillside vegetation, while the undeveloped shoreline is dominated by evergreen tree species. Shaw Lake is the third closest lake to the Project, but views of Bowers Mountain and a portion of Dill Hill are blocked due to intervening topography.

Use

Use of this lake is unknown and is most likely limited to adventurous, inveterate paddlers and anglers. According to a 1974 MDIFW survey, the lake provides good habitat for warm water gamefish, and is noted for its smallmouth bass fishery. It is a favorite of a number of smallmouth anglers. Access to the lake is very difficult. There are no identified boat launches or public camping areas. Although there is a logging road that passes by the lake to the south, it appears to be impassable. Shaw Lake can be accessed from Scraggly Lake to the south, less than 1/8 of a mile away, via a canoe or kayak portage over the logging road which divides the two lakes, along an unclearly marked, densely wooded streamside path, leading to a debris filled shallow stream which connects to Shaw Lake upstream.

View of Shaw Lake from adjacent access road

Visibility

According to the viewshed map, up to 25 turbines may be visible from the southern shore of Shaw Lake. For as many as 8 of these turbines, however, only views of blades would be likely. While Dill Hill is visible from Shaw Lake, the other ridges with proposed turbines are not visible due to the intervening topography associated with Vinegar Hill and unnamed ridges. As such, the majority of the visible turbines tend to visually 'hug the ridgeline,' thereby lessening their

potential visual impact (see Exhibit 13: Visual Simulation from Shaw Lake). Dill Hill has a very flat and indistinct form from this vantage point, while Vinegar Hill and the peak directly northeast of it appear as the most pronounced hills when looking toward the Project site. As indicated in the visual simulation, the visual forms of these hills would remain dominant compared to the turbines visible around them. Visual impacts are also mitigated by the fact that this lake gets very little use due to access challenges.

H. Sysladobsis Lake

Significance

Sysladobsis Lake is identified as Significant with a Management Class of 4. Relief and vegetation diversity are characterized as low, physical features are medium, shoreline configuration is high, and there are no special features.

Character

Sysladobsis Lake, located in the town of Lakeville and stretching across Washington and Penobscot Counties, is approximately 5,401 acres with the upper 691 acres located within 8-miles of the Project. This lake is 5.8-13.6 miles from the nearest proposed turbine. Consistent with the character of the surrounding region, this lake is surrounded by low hills and mixed forest cover. The lake is narrow and long with a generally rocky shoreline, interspersed by several sandy beaches. There are several shoals and rocky points, and at least eight identified islands throughout the lake, adding to the lake's interest. At the upper end of the lake, coves with marshy, weedy shorelines are evident. The lake is impounded with a dam located at the southeastern end that raises the water level approximately six feet. Coldwater and warm water fish are present.

Looking south from the northernmost boat launch on Sysladobsis

Within 8-miles of the Project, there are about 52 private camps and homes scattered along the lakeshore, with more concentrated development on the eastern shore. A private campground is located along the northwestern shore near the public boat launch, but it is unclear whether or not it is still in business.

Use

Fishing, boating, paddling, swimming and camping are common recreational uses of this lake. The presence of four motorboat launches, one hand carry boat launch and, six campgrounds suggests fishing, boating, and camping are common activities. Annually stocked salmon, and the

presence of bass, perch and pickerel draw fishing enthusiasts to this lake. A local fishing and hunting guide confirmed that this lake receives medium to high frequency of use by anglers, notably in the spring during salmon fishing season.

A public boat launch is located adjacent to the private campground, and Pug Hole hand carry boat launch is located at the northeastern shore. Outside of the 8-mile area, three additional boat launches are located along the central and southern end of the lake, including boat launches at Horseshoe Cove, The Pines Lodge and Campground and the Sysladobsis launch adjacent to the dam. Four public lakeside tent campsites and The Pines are also located south of the 8-mile area.

Visibility

The viewshed analysis indicates that up to 22 turbines may be visible as background views, with the closest turbine being over 6 miles away. The turbines visible on Dill Hill would appear very small and clustered due to distance and angle of view. The majority of the lake is beyond 8 miles. Even for the portion of the lake within 8 miles of the Project, many areas of the lake would be without visibility, notably along the northern and eastern shore. The cove that connects to Upper Sysladobsis Lake would have no visibility, and the large islands on the lake would buffer or block views as well. Home and camp development along the eastern shore would be visible when viewing the Project from portions of the lake. Due to the distance and angle of view, the most visible turbines would appear relatively clustered and small, and they would take up a narrow portion of the overall viewshed.

4.1.9 Overall Impact Evaluation

Introduction

An evaluation methodology has been developed for this Project to provide a means of fully assessing the visual impacts to those resources, which have been identified as having specified scenic value. Experts in visual and scenic resource assessment have employed a number of different evaluation methodologies, which have been employed in assessing the overall effect of wind energy projects on scenic resources in Maine, including a framework set forth by James Palmer in his "Review of the Spruce Mountain Wind Project Visual Impact Assessment."[15] The evaluation is based on the six criteria set forth in the Wind Energy Act and employs a ranking system to determine the level of the project's impacts on scenic resources in relation to those criteria. In this VIA, LandWorks has adopted a similar approach, one which addresses the six criteria, but adds some additional criteria which further inform the process and provide additional means by which to understand the Project's overall impacts and ultimate "fit" with its context. (Note that the Act recognizes that wind turbines are not necessarily fully "harmonious" with their surroundings insofar as the very nature of wind energy requires that the turbines be placed on higher ground and above treelines to effectively capture the resource - that they "are potentially highly visible landscape features that will have an impact on views.")

[15] Palmer, James, "Review of the Spruce Mountain Wind Project Visual Impact Assessment", June, 2010, pp. 28-33.

It is important to note that the designation of a lake as outstanding or significant has itself been based on a particular methodology and ranking system that was completed over 20 years ago. Given the passage of time and the increased knowledge and understanding of these resources in the context of current conditions and overall regional and national context for understanding what makes a resource scenically valuable or, more importantly, unique, these designations provide a point of departure and should not be used as the only standard.

Another factor to take into consideration with regard to the analysis is the presumption that the view of a wind project has a negative visual impact. There are many who believe that wind energy is necessary and desirable, and therefore are not unduly or negatively effected when they have a view of a wind project; we have conducted interviews for this Project, which have yielded this information, as well as responses that indicate that a view of a wind project does not necessarily affect their enjoyment of their recreational experience (email response from Alex Wilson, co-author of *Quiet Water Maine* on 10-29-2010: ... "for me ridgetop windfarms are not incompatible with a wilderness experience"). There are others who consider grid scale wind turbines to be aesthetically pleasing- indeed the design of wind turbines and towers can be considered an excellent example of the design principle of "form follows function."

Finally, one distinct challenge for assessing visual impacts in northern New England is that the background scenic quality, compared to other regions of the country, is relatively high. This New England landscape, with its topography, vegetation, and historic settlement patterns and land uses is typically considered scenic in a general sense - therefore resulting in the potential for any project to have an impact on overall scenic qualities. The Project area has "everyday" scenic attributes that are of higher value than the more developed areas of New England and the northeast, but are commonplace in northern New England and the Adirondack region of New York State. Thus the relative scenic values within the area must be considered and not be compared to locations outside of the region.

This background information contributes to our understanding of how wind energy development affects visual and scenic qualities; nonetheless, it is helpful to develop a systematic and more quantitative approach to assessing the visual impacts of this Project on the identified resources within the Area of Potential Effect. This evaluation methodology incorporates the key considerations and criteria of the Wind Energy Act and adds additional evaluation elements derived, in part, from technical approaches to assessing visual impacts promulgated by the United States Forest Service coupled with LandWorks experience in assessing the visual impacts of wind energy developments, which inform application of the statutory criteria.

Evaluation Approach

This section sets forth a two part evaluation matrix designed to identify and rank 1) the value of the resource, and 2) the potential impact to the resource. In each category the review has been assigned a ranking and these include:

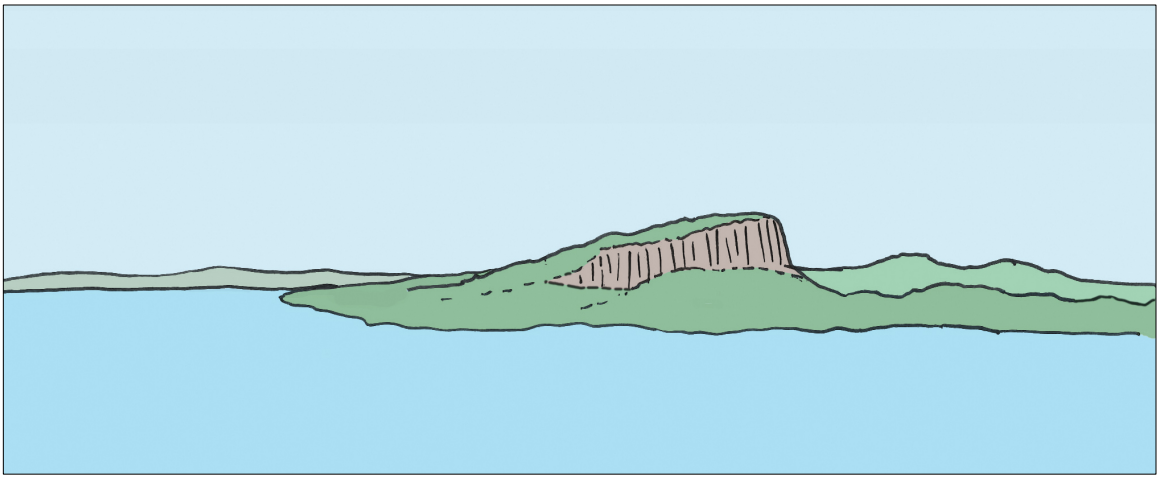
0 = None: no value assigned to the resource; or no potential impact to the resource
1 = Low: a low value assigned to the resource; or minimal or low potential impact to the resource
2 = Moderate: the resource has moderate value; or the potential impact is moderate
3 = High: the resource has high value; or the potential impact to the resource is high.

Value of the Resource

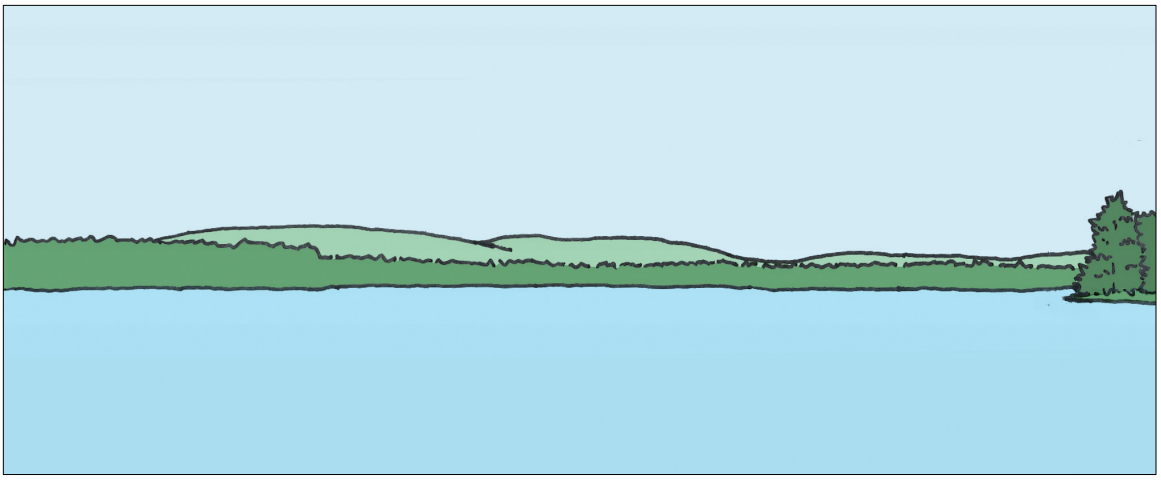
Significance/uniqueness. This category assesses the overall significance of the resource based on its unique, distinctive or exceptional character. This evaluation criterion asks the question as to whether or not this landscape or resource is unlike any others, contains distinct landscape elements apart from other landscapes, and is unique. Other qualities considered include "vividness", which relates to the presence of variety and contrast in the landscape and "unity" or "intactness" which implies that the landscape is coherent, lacks intrusive or uncharacteristic elements and thus promotes a sense of order and balance and provides the viewer or user with a memorable experience based on the visual qualities of the landscape alone. The level of development can also affect the rating of a resource's value. This evaluation criterion is derived from the USFS articulation of "scenic attractiveness" as part of its overall Scenery Management System set forth in the publication *Landscape Aesthetics*.[16]

Character. This analysis category assesses the overall landscape character of the resource and its environs. A high ranking would imply that the landscape character is of highest quality within the regional context, with richer resource characteristics such as a lake that is totally undeveloped, surrounded by diverse vegetation types, old growth forests and diverse geological and geomorphological elements (see sketches that follow). A lower ranking implies that while the resource is scenic in a general sense, and contains pleasing landscape characteristics, it does not rise to a level of being exceptional, sensitive, highly valuable or varied.

[16] *Landscape Aesthetics* A Handbook for Scenery Management, United States Forest Service Agriculture Handbook Number 701, pp. 1-15 - 1-18.



Example of a distinct landscape with unique or singular scenic qualities due to the geology and geomorphology of the terrain.



Typical character of the landscape and terrain as viewed from lakes within the vicinity of the Project Site. Note the subtle, rolling terrain with low ridges and hills that lack unique scenic values or qualities and do not include distinctive geomorphological characteristics.

Level of Use. This category considers the number of users. A well-used resource would typically indicate a higher value ascribed to that resource (people are more attracted to it than other similar resources) because the potential impacts from a project would affect a higher number of individuals. Level of use information has been derived from 1) field observations, 2) interviews and anecdotal information and 3) available research data (which is limited).

Viewer expectations. This is a more difficult category to assess insofar as every individual has a different perspective, purpose and expectation that he or she may bring to the experience of the resource. One key consideration in this regard is the predominant types of recreational use of the resources considered, which are primarily lakes and ponds. By far the most prevalent use of these lakes is for fishing and motor- boating, and both of these user groups (which are often the same

group - i.e. anglers using motorboats for fishing) are less focused and dependent on scenic quality for a satisfactory recreational experience. Camping, snowmobiling and ice fishing are also typical recreational activities, and much fewer canoeists and kayakers are users of these lakes, in part due to lack of access, and the fact that the conditions on larger lakes can be less amenable to flatwater boating. Each user group has different expectations although some of those expectations may be shared among user groups. While scenery and undeveloped lakeshores are valued, these qualities do not appear to be as important as water quality, fresh air, lack of shoreline development and the overall fishing experience. A resource that is well known and promoted for its scenic attributes would contribute to a high value for viewer expectations of scenic quality. However, this value would be diminished based on the level of development experienced by the viewer using or visiting the resource. Based on this assessment, none of the resources in the Project area appear to rise to that level.

Impacts to the Resource

Proximity/Distance Zones. The closer the project is to the resource, the greater the potential exists for visual impacts. A resource with visibility within 2 miles of a project will experience a high level of impact and have a corresponding rating of 3. If the project is within 2 to 5 miles of the resource and is visible, it would receive a moderate impact ranking; over 5 miles results in a low impact ranking. If the resource is visible beyond 8 miles or not visible at all, the ranking is 0 or no impact.

Extent and Nature of Visibility. This category accounts for the number of turbines visible and the extent of that visibility - factoring in how much of the individual structures and rotors are visible; such as 1) most of or a portion of the tower and all of the nacelle and blades, 2) just the nacelle and blades, or 3) just portions of the blades. The greater the number of turbines visible, and the greater extent of the each turbine that is visible, results in a higher impact and correlating ranking. This component of the evaluation is based on the information provided in Table 1, Exhibit 4, and Exhibits 6-13 of this VIA.

Duration of View. This evaluation is based on whether or not a user of the resource or viewer will have an extended and involuntary view of a project (high impact) or if the duration of view is limited either by the extent of visibility from the resource or if there are other views and locations which the viewer can experience the resource from with minimal or no visibility of the project.

Impact to Enjoyment. It is important to ascertain if visibility of the Project has an impact on the user's ability to enjoy and fully experience the resource. A number of factors can affect this quality, including the viewer's attitude towards wind, the type of activity the viewer is engaged in, and whether there are options for experiencing the resource without viewing the Project if visibility of the Project is considered undesirable by the user. Thus, this is a more difficult category for objective assessment.

A large lake with areas that have no Project visibility could afford the user the opportunity to enjoy their activities in that portion of the lake unaffected by any visibility of the Project; this would translate into a lower impact rating. If the Project is highly visible from most of a lake and relatively close, and its visual qualities or presence is not readily accommodated or absorbed by other landscape qualities or recreational activities, a higher impact level would result and be ranked accordingly. The level of development in and around the resource also impacts enjoyment. The more development that is present within the viewshed (i.e. high density shoreline development), the potential exists for further reduction of the visual impact of a wind project. Furthermore, some activities are less sensitive or depend less on the scenic character of the resource. For example, fishing is influenced more by the quantity and quality of fish than it is on the scenery of an area. Thus, a lake frequented more often for its fishing rather than for its scenic attributes, further reduces the impact of the Project on the users enjoyment.

Visual Absorption. This is another visual assessment category that is used in the Scenery Management System of the Forest Service. In *Landscape Aesthetics* it is stated that "visual absorption capability relates to physical characteristics of the landscape....it is a classification system used to indicate the relative ability of any landscape to accept human alteration without loss of landscape character or scenic condition."[17] Assessing visual absorption relies on an understanding of the Project context and landscape conditions coupled with a review of visibility characteristics and the visual simulations prepared for each resource. (Note that many of these simulations were taken from vantage points that include the greatest extent of visibility from a particular resource.) If an area has a high level of visual absorption, therefore lessening the impacts associated with Project visibility, the ranking in the evaluation criterion will be low. If the resource and the vantage from which the visual impacts to the resource are evaluated from yield a conclusion that the landscape is less able to reduce the visual dominance, presence or visibility, than that condition would result in a ranking a high impact to the resource.

The matrix that results from this approach is presented in Table 2 on the following page and yields an overall ranking of scenic impact on a resource-by-resource basis. This table and the individual and overall rankings inform the findings and conclusions of this Visual Impact Assessment.

[17] *Landscape Aesthetics* , p.C-1.

Table 2. Evaluation Matrix

0=None 1=Low 2=Moderate 3=High NA=Not Applicable due to No Visibility within 8 miles **Resource**	**Value of Resource**				**Impact to Resource**					**Overall Scenic Impact***
	Significance/ Uniqueness	Character of Area	Level of Use	Viewer Expectations	Proximity/ Distance Zone	Extent/Nature of Visibility	Duration of View	Impact to Enjoyment	Visual Absorption	
Springfield Congregational Church	NA	NA	NA	NA	0	0	0	0	0	**0**
Bottle Lake	1	1	2	1	1	1	1	1	1	**1.1**
Duck Lake	1	1	1	1	2	1	1	1	1	**1.1**
Horseshoe Lake	NA	NA	NA	NA	0	0	0	0	0	**0**
Junior Lake	2	2	2	1	2	1	1	1	1	**1.4**
Keg Lake	1	1	1	1	2	1	1	1	1	**1.1**
Lombard Lake	NA	NA	NA	NA	0	0	0	0	0	**0**
West Musquash Lake	NA	NA	NA	NA	0	0	0	0	0	**0**
Norway Lake	NA	NA	NA	NA	0	0	0	0	0	**0**
Pleasant Lake	2	1	1	2	2	3	2	2	2	**1.9**
Scraggly Lake	2	2	1	2	2	2	2	2	2	**1.9**
Shaw Lake	2	1	1	2	2	2	2	2	2	**1.8**
Sysladobsis Lake	1	1	2	1	1	1	1	1	1	**1.1**
Upper Sysladobsis Lake	NA	NA	NA	NA	0	0	0	0	0	**0**
Overall Project Impact†										**0.8**

*Overall Scenic Impact is determined by averaging the 9 categories of each resource.

†Overall Project Impact is determined by averaging the overall scenic impact for the 14 resources.

4.2 Public Perception of Wind

Utility scale wind turbines and arrays of such turbines - often referred to as "wind farms" - are relatively new to the New England region and the Maine landscape. There have been a number of local, national and international studies and reports which have addressed the public reaction to and acceptance of utility scale turbines, their towers and the associated landscape modifications required for the siting of such installations. The work of Paul Gipe and others, as well as numerous surveys and studies, have addressed the public's perception of wind power, and there is evidence that wind energy development is gaining support.

Recent polls increasingly demonstrate public support for wind power, including in areas of high scenic value. For example, the Critical Insights on Maine survey, a comprehensive, statewide public opinion survey of registered voters that covers a variety of topics, indicates that 90% of Maine people support wind power development as a way to reduce our dependence on fossil fuels and produce jobs and other economic benefits.[18] A more recent poll conducted by the Pan Atlantic SMS Group for the Maine Renewable Energy Association (MREA), found that 88% support wind power statewide and 83% in the "rim counties," which are the rural counties where development of wind facilities is more likely.[19] Additionally, a recent poll conducted by the Vermont Department of Public Service found that 90% supported a wind farm being built within the view of their home, with 75% strongly supporting the development of a wind farm within view of their home.[20] Research presented in the publication "Wind Power In View" has also highlighted increased public understanding and acceptance of wind generation as a viable alternative to fossil fuels; of relevance to placing wind farms in the Maine landscape is the view presented by noted landscape architect Robert Thayer, who stated that well designed and "well sited wind energy projects can achieve a serviceable beauty common to other working landscapes."[21]

In response to these factors and insights, and in relation to grid-scale wind projects in Maine, it is important to consider a number of key factors when assessing visual impacts from wind projects. These factors include: 1) the historic working landscape of the state that has tapped into it's renewable resources; 2) a tradition of a resource based landscape that is not pristine and, in fact, has been utilized for extensive logging; and, 3) the public's increasing recognition that wind provides an alternative to other forms of more harmful and unsustainable energy generation.

Wind generated power, and windmills themselves, have been in use in America since the first one was built on Manhattan Island in 1633. In fact, the seal of the City of New York has a windmill

[18] Critical Insights, *Critical Insights on Maine* Tracking Survey: Residents' Views on Politics, the Economy & Issues Facing the State of Maine, November 2009
[19] Pan Atlantic SMS Group, *Report to MREA: Highlights of Survey Findings*, May 2010
[20] Vermont Department of Public Service website on Vermont's Energy Future - http://www.vermontsenergyfuture.info/Final.
[21] Pasqualetti, Gipe, et al., *Wind Power in View*, (San Diego: Academic Press, 2002).

design as its centerpiece. Lithographs of Nantucket in the early 1800s show windmills above the bustling harbor. From the 1940s on, grid scale wind power has been developed in Vermont, with turbines on Little Equinox Mountain from 1986 to 1994 and with the Searsburg Wind Farm, which was developed in the late 1990's and is still in operation. Thus, the form and shape of the classic windmill is not new, nor is the notion of wind power being interconnected with and part of the working landscape.

The working landscape is now changing to accommodate new forms of energy generation, as represented by wind, solar and biomass. As John Stilgoe pointed out in his book *Landscape and Images*, "...the American vernacular landscape will change and change again, ceaselessly reflecting the unprecedented complexity and rate of economic, technical and social change...the vernacular landscape is often the first to indicate changes in lifestyle and attitude, because it is the built form that shapes the lives of most Americans."[22] Wind energy represents an example of technical change to accommodate the changing values and needs of our population. But change is often difficult to accept. When large scale manufactured metal silos were introduced into the agrarian landscape of New England in the mid 20th century, there were initial concerns about their visual impacts - they represented a change from the smaller scale wood strip and tile sided silos which were dwarfed by the larger, newer designs - those manufactured "Harvestore" type silos can now be seen on scenic postcards and are an accepted part of the pastoral landscape.

There is also an assumption that wind projects inevitably result in adverse visual impacts. However, many viewers see wind turbines as representative of technological innovation and beautiful examples of modern design that are representative of the well established design ethic of "form follows function." When considered in this context, wind turbines, with their towers and rotors, are simple, unadorned and elegant elements in the landscape that visually represent their purpose.

Given the increasing public acceptance and understanding of grid scale wind energy development, and the notion that the working landscapes of Maine and Northern New England are changing to reflect new forms of resource use and management, with wind being one such resource, it can be concluded that the consequent visual impacts of wind are not always necessarily negative or adverse.

4.3 Viewer Expectations

Landscapes are viewed in varying levels from different locations and subsequently differ in their importance. Therefore, it is essential to understand how an area's landscape compares to other nearby resources and its level of use. These factors provide an indication of what people's level of interest will likely be for the surrounding landscape (i.e. an area that is not unique and does not receive frequent use would have lower concern or expectation). All the lakes outlined in 4.1

[22] John R. Stilgoe, *Landscape and Images*, (Charlottesville: University of Virginia Press, 2005).

above generally share the same similar characteristics of low-lying hills, mixed forest cover, and rocky shorelines. Several shoals, coves and low islands can be found dispersed throughout. While the scenery is pleasing, it is not unique or distinct – there are no special, defining features other than isolation and solitude. This fact is confirmed in the Scenic Lakes Character Evaluation, which suggests all but two of the lakes have low relief and no special features. Middleground to background views are therefore less important to viewers than foreground views, which encompass the water itself, shoreline and immediate forested hillsides. None of the lakes have foreground views (within 2 miles) of the Project. Development of homes and other modern amenities along the shoreline are far more intrusive and interfere more with a users perception of seclusion than peripheral views.

These lakes are most typically frequented by local anglers or seasonal camp owners and do not typically draw crowds of long-distance visitors. Preliminary results of phone surveys across New England indicate that few people are aware of or regularly use scenic lakes in the study area.[23] A total of n=191 interviews were completed with just 31 reporting regular use around the region. Overall, 549 of those contacted indicated they were either unfamiliar with or did not regularly use any of the 8 lakes included in the survey including 120 whose primary residence is within 50 miles of the project. Other research also indicates seasonal use, with motor boating, fishing, and camping identified as the most common activities. MDIFW also stock many of these lakes, substantiating their use mainly for fishing and not necessarily for their scenic quality. Moreover, they are difficult to access, are not advertised as tourist destinations and therefore are not recreational areas of regional or national importance. Use of the area is also influenced by the status of water drawdowns from nearby dams, such as West Grand Dam and Sysladobsis Dam, which affect when and if recreation activities will be available to users. If waters are low, people are unable to reach some of the lakes because there are no boat launches and stream connections are too shallow for boats to safely navigate.

As part of our own effort to evaluate the public's use and enjoyment of the region's resources, LandWorks also conducted informal interviews[24] with two Lakeville Selectboard members, the spouse of a third Lakeville Selectboard member, and one local guide service. Respondents were asked questions about what types of recreational activities occur on the significant lakes in the Project area, what months are highest-use, the average number of lake users on an average day during high-use, whether the recreational users are tourists or local residents, and questions about fishing and boating activities on the lakes. Responses show, and further support our earlier conclusion, that fishing is a very popular, if not the most popular, recreational activity in the Project area and that use is typically low to moderate for the region. One respondent commented that there are 95 year round residents in the town of Lakeville, but 700 property bills are sent out each year, indicating the extent of seasonal, part-time use. Respondents felt that the lakes designated as significant or outstanding received similar use compared to other lakes in the

[23] Preliminary results of telephone user surveys conducted by Portland Research Group, January 10-18, 2011.
[24] Telephone interviews conducted by LandWorks, September and December 2010

region, and that, overall, the lakes experiencing the highest use are Bottle Lake, Junior Lake, West Musquash Lake and Sysladobsis Lake, all of which are located beyond 3 miles of the proposed Project.

AMC's best-selling *Quiet Water* guide, referenced in Section 2.3.4, identifies the Pocumcus, Junior, and Sysladobsis loop (which includes other significant lakes like Keg, Bottle and Scraggly) as a recommended canoeing and kayaking trip, and helped inform our understanding of viewer expectations and the type and extent of use of lakes in the 8-mile radius. As a follow up to this resource, one of the co-authors, Alex Wilson, was contacted to obtain more insight into the area (see Exhibit 14. October 29, 2010 Email from Alex Wilson). His sense is that "these are fairly wild lakes that probably get little visitation." While he believes visitors to the area "certainly appreciate the wilderness feel and would likely expect a wilderness experience," he comments "If I were paddling on Scraggly—a wonderful place where I've seen moose, bald eagles, and otters—and there were wind turbines on a ridge two or three miles away, that would not bother me at all. In fact, I would appreciate the fact that those wind turbines were responsible for keeping the crisp, clear air around me cleaner…I cannot speak for others, but for me ridgetop windfarms are not incompatible with a wilderness experience."

While turbines will be visible from many areas on these lakes, users will still be able to boat, fish, hunt, camp, swim and paddle as before. Public access will not change and people will continue to have the same access to and use of the lakes. The integrity of the water will not be impacted, and the quantity and quality of fish will remain the same, which is the primary reason people visit these lakes. Fisherman can orient their boats away from the turbines, or situate themselves in one of the many coves, if views of the turbines become undesirable. They may also recreate at other nearby and comparable lakes with fewer or no views of turbines, if preferred. Campsites will also remain unaffected and most have no views of the Project anyway due to orientation and intervening vegetation. The Project will not impact noise quality, wildlife or wildlife viewing in the designated scenic resource, where these characteristics will remain unchanged. In terms of winter use, which is primarily snowmobiling and ice-fishing, these activities would remain unaffected since views of surrounding ridges is not a primary consideration for these forms of recreation. Snow fishermen often utilize temporary structures that provide visual isolation, and snowmobilers spend much of their time travelling at high speeds, usually through wooded areas with no views. As quoted from James Palmer in the review of the Spruce Mountain Wind Project "There is little empirical research about the sensitivity people engaged in different recreation activities to scenic quality and impacts. However, one study did find that people who fish or hunt are less sensitive to scenic value and impacts than people who hike and canoe. In addition, the intercept interviews on Bald Mountain suggested that while the view was important for some, the experience was more about being outside in the fresh air and getting some exercise."[25]

[25] James F. Palmer, *Review of the Spruce Mountain Wind Project Visual Impact Assessment*, June 11, 2010, pg.30.

4.4 Minimizing the Project's Visual Impacts

Minimizing the visual impacts of a wind project is always a challenging prospect given the nature of wind energy developments, which in Northern New England typically require the placement of turbines on high ground above treelines. Thus, a project cannot be hidden, screened or sited in a manner that avoids a certain extent of visibility. There are, however, some distinct considerations and minimizing measures that help to reduce both the visual and environmental impacts of wind energy development such as that which is proposed for the Bowers Project. These include the choice of the Project location itself, sensitive siting of individual turbines and access roads and collector lines, and revegetation of some graded areas or clearings, which result from Project construction.

4.4.1 Project siting

While not necessarily considered a minimizing measure, appropriate siting of a wind project can do much in advance to limit potential visual impacts. This includes selecting sites that are not in highly sensitive viewsheds or near to or extensively visible from highly used, highly valued scenic resources. This is the case with the Bowers Project. The area it is located in certainly has scenic qualities, which are typical of this region of Maine. Several lakes in the Project's viewshed have been identified as either of significant or outstanding scenic quality, but recreational populations and users of these resources are not as numerous as other popular destination lakes in Maine such as those found in the Sebago, Flagstaff or Moosehead Lake regions, all of which have more extensive development infrastructure for tourism and recreational activities. Additionally, the landscape character and lake qualities within the viewshed are not unique or one of a kind type environments that are so highly sensitive as to preclude any resource development. The locations chosen for this Project also include logging areas and roads indicative of the fact that the site and environs are not pristine. The low ridges and topography are ideally suited for wind energy development that would not necessarily result in any direct impact to trails, hunting areas and other recreational pursuits, reinforcing the viability of selecting this location for the Project.

4.4.2 Access roads and collector lines

Where possible, access roads have been co-located with existing logging roads, accounting for about 12% of the overall road length. Roads have also been designed, to the extent possible, to be on the north side of Project ridges, in order to minimize visual impacts to scenic resources. Collector lines have also been co-located with access roads whenever possible. The access roads have been designed to 1) minimize impact to natural resource areas such as wetlands, and 2) reduce the steepness of the road grade and consequent grading and runoff impacts. The overhead electrical collector lines connecting the turbines are designed on a structure by structure basis and need to be laid out in a straight line between the structures, therefore limiting the areas in which the line and the road can share a corridor.

4.4.3 Transmission line, O&M building, substation, express collector line

The Project's electrical collector lines will connect with the existing Line 56 about 5 miles north of the Project area. This transmission line already serves the Stetson project increasing the efficiency of the transmission network insofar as it will be serving 2 projects rather than a single project and reducing the need for extensive new transmission line construction. In addition to the express collector line and transmission line, the O&M building and substation will also be located on the north side of the Project ridges and will not be visible from scenic resources.

4.4.4 Turbine clearing and grading

The footprints for turbine sites and the required clearing and grading has been minimized to the greatest extent possible, and in many cases the shape of the pad area has been reduced and or reconfigured to accomplish this minimizing measure.

4.4.5 Revegetation

All soil in disturbed areas outside the access roads will be seeded and allowed to revegetate naturally.

4.4.6 Educational information

Another effective tool which can be explored if necessary or warranted is to provide educational information or interpretive signs at key public vantage points to explain to the public the nature and purpose of the Project. An example of this could be placement of informational signs at a boat launch site at one or more of the lakes where those who are recreating are most likely to have views of the Project.

4.5 Visual Impacts from Associated Facilities

Three Visual Simulations were selected for the depiction of potential visual impacts related to all associated facilities. The substation, O&M Building, and Transmission Line are all located on the north side of the ridge, so none of these associated facilities would be visible from any resources of State or National Significance, all of which are located to the south of the project. The potential visual impacts from turbine pads, roads, the collector line, and all associated clearing are depicted in the following simulations:

- Pleasant Lake Boat Launch
- Junior Lake
- Duck Lake

These locations were selected because they represent a sampling of the full range of viewing angles from the various lakes, and they are located at a range of viewing distances.

Visual Impacts from Pleasant Lake Boat Launch

- Road below T6- some exposed slope due to grading and clearing.
- Slight notch in ridgeline trees by T5.

Summary: There is minimal visual impact from clearing, and these limited impacts are distant at over 6 miles away.

Visual Impacts from Junior Lake (Northwest Shore)

- Notches in ridgeline trees associated with turbine pads/roads for T1-T6.
- Some exposed graded slope visible east of T4.
- Road between T6 and T7- some exposed slope due to grading and clearing
- Clearing for collector line, as it crosses crane path between T6 and T7 results in notch in ridgeline trees. This notch is aligned with turbine T6, resulting in visibility of the turbine tower base. A short section of collector line might be visible in this area due to potential silhouetting against the sky, although it would likely be hard to pick out due to distance.

Summary: Due to the narrow ridge of Bowers Mountain, the grading for roads and turbine pads in this area results in some visual impacts associated with clearing and a couple potentially visible graded slopes. Additional clearing required for the collector line may be noticeable in some locations, although for the most part it would not be detectable. These impacts are middleground views at approximately 4.5 to 5 miles away. Although the ridgeline forest cover would become notched in places, this type of visual impact is apparent on many ridges in the area due to logging practices.

Visual Impacts from Duck Lake (Southwest Shore)

- Notches in ridgeline trees associated with turbine pads/roads for T1 and T3-T6.
- Some exposed graded slope visible east of T4.

Summary: Due to the narrow ridge of Bowers Mountain, the grading for roads and turbine pads in this area results in some visual impacts associated with clearing and one potentially visible graded slope. Additional clearing required for the collector line may be noticeable in some locations, although for the most part it would not be detectable. These impacts are middleground views at approximately 3 to 4 miles away. Although the ridgeline forest cover would become notched in places, this type of visual impact is apparent on many ridges in the area due to logging practices.

Overall Conclusion

In terms of the associated facilities, the primary visual impact is from tree clearing. Although the majority of such clearing would be imperceptible, some visible notches in ridgeline forest cover would not be incompatible with this landscape due to the existing logging activities, and the visibility of these potential impacts greatly diminishes with distance. The O&M building, substation, and express collector line are all located on the north side of project ridges, outside of view from scenic resources to the south.

4.6 Night Sky Impacts

There is relatively little impact from the FAA required L-864 red flashing beacon to the night sky. In other words, the nature and angle of the light's distribution is such that it does not: 1) create glare or direct bright light in any viewer's eyes; 2) create night time sky glow such as what is commonly observed over towns and cities; and, 3) affect the ability to see and appreciate the stars and night sky.

The key visual issue with these lights is that they typically represent new lights in the landscape, and the on-off blinking aspect of such light can annoy viewers who are accustomed to having an "unfettered" view of the night sky. The potential for visual impact from these required lights is reduced by the simple fact that people are not typically recreating at night or spending long periods of time out of doors, particularly in the cooler months and during winter.

A report developed for the FAA on night lighting by James Patterson stated that "...studies have suggested that the use of ...L-864 fixtures are effective in reducing impacts on neighboring communities, as the fixtures' exposure time is minimal, thus creating less of a nuisance."[26]

As with visual impacts during daytime hours, the visibility and prominence of the safety lighting at night will diminish with the distance. As with the turbine array itself, the amount of the visible 360-degree panorama that the required aircraft safety lighting will occupy will also diminish with distance, as illustrated in Diagram 1 of this VIA.

[26] James W. Patterson Jr., *Development of Obstruction Lighting Standards for Wind Turbine Farms*, (For the Federal Aviation Administration, 2005).

5. Assessment Summary and Conclusion

This Visual Impact Assessment has incorporated a range of considerations, including extensive on site evaluation, local information resources, an understanding of the existing context with regard to scenic qualities and landscape character and technical methodologies, that collectively inform and guide the conclusions presented herein. This assessment of the Bowers Wind Project finds that, based on the parameters provided in *35-A MRSA Section 3452. Determination of effect on scenic character and related existing uses*, the Project **will not have "an unreasonable adverse affect on the scenic values and existing uses related to scenic character of a scenic resource of state or national significance."**

5.1 Summary

This conclusion is based on a thorough evaluation of the statutory criteria including:

- The significance of the potentially affected scenic resource of state or national significance;
- The existing character of the surrounding area;
- The expectations of the typical viewer;
- The project purpose and the context of the proposed activity;
- 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,
- The scope and scale of the potential effect of views of the generating facilities on the scenic resource of state or national significance.

5.1.1 The significance of the potentially affected scenic resource of state or national significance

Within the eight-mile viewshed, the Project will not be visible from any National Historic Register sites, and there are no national or state parks, national natural landmarks, trails, scenic rivers or streams, Maine DOT scenic turnouts, or scenic viewpoints located in the coastal area. The only scenic resources of state or national significance that have visibility of the Project are certain lakes within 8 miles of the Project.

Visual Assessments under the Wind Power Law rely on the determinations of the inventories and assessments set forth in the "Maine's Finest Lakes" study (1989) and the "Maine Wild Lakes Assessment" (1987). Table 1 in this VIA identifies 4 waterbodies within the 3-mile radius of the Project. Only one of those lakes, Pleasant Lake, has been designated as an outstanding resource for scenic qualities. Additionally, 4 lakes have been identified in the 3 - 8 mile Project radius that will have potential visibility of the Project. None of these lakes are listed as "outstanding" resources for their scenic value. These are among a total of 30 lakes and ponds within the Project's 8-mile radius.

"Maine Wild Lakes Assessment" and "Maine's Finest Lakes" have indeed identified these lakes as significant or outstanding, but these are relative terms. Much has changed since the reports were completed twenty years ago. Lakeshores have been developed, hillsides and access roads have been cleared for logging, and people's perceptions have changed. Accepted methodologies for determining scenic quality and significance have also been clearly defined and adopted. While these important studies provide a point of departure for identifying lakes that may be significant, the studies cannot be used as the only indicator. There is established scenic quality to these and other lakes listed as "significant" or "outstanding," but that does not necessarily translate into a lake being unique or so important from a scenic perspective that no development can occur on or within the viewshed of those lakes.

Based on the analyses set forth in the previous sections of this VIA, which has included on site assessments, it has been determined that none of these lakes are unique and/or uniquely distinctive when compared with other similar lakes in the region, or in Maine as a whole. These lakes do have scenic values and other desirable attributes that were identified in the original studies cited, but the significance and quality of these values and attributes are not singular and precious to the extent that they represent one of kind or provide opportunities and experiences that cannot be experienced elsewhere. Thus, their overall significance within the parameters of this criterion is diminished.

5.1.2 The existing character of the surrounding area

The character of the surrounding area has been addressed in Section 3.2 of this Assessment, presented in Diagrams 2 and 3, and is also discussed on a lake-by-lake basis in Section 4.1.8. The landscape present in the Project environs is typical of this region of Maine, with extensive forest cover, patches of open and logged areas, miles of gravel and dirt roads and rural settlement patterns. Route 6 is the primary state highway in the area and runs in an east west direction to the north of the Project site.

This is an area that does not include any high value natural resources or landscape features that are identified or celebrated for their special qualities. No distinctive geological or topographic formations, or unique large-scale ecosystems or natural communities have been identified. The physiography is primarily characterized by the lakes, ponds and watercourses present, and the low elevation, low relief hills with typically 500 to 750 feet of relief above the surrounding landscape. There are no specific references to scenic resources in this area cited in the Scenic Resources section of the Comprehensive Land Use Plan,[27] and although this area is recognized for its vast forests and remote qualities, these qualities are compromised or qualified by the fact that extensive timber harvesting has occurred in and around the Project area, with the corresponding impacts of cleared and logged areas, landings and the road networks and road construction that has been developed to access the forest resources.

[27] 272-273 of CLUP

Field observations reinforce the evidence that this area is indeed a working landscape, with timber production being the dominant land use. Logging roads are evident along Route 6, particularly in Kossuth, and Amazon Road has the appearance of a major access road for logging trucks. Amazon Road serves as the main vehicular public access for a number of lakes, including Pleasant Lake, Scraggly Lake, West Musquash Lake, and Norway Lake. As shown in the Photo Inventory for Scraggly Lake in Exhibit 5, there are numerous logging roads with associated impacts and waste along this road. This is a landscape that has been modified by human activities and these observations dispel any sense of being in a remote wilderness area. This conclusion is further substantiated by evidence of logging on ridges in the area, visible from many of these lakes. Logging on Bowers Mountain and other ridges visible from these lakes is shown in a number of the Photo Inventories, including Pleasant Lake and Duck Lake. As such, the addition of wind turbines in a working landscape could be considered an additional example of natural resource utilization in the area.

Thus, the proposed Project is consistent with other resource uses of the area. Although it represents a new resource that will be tapped, harvesting the wind is not altogether different than harvesting the wood resource. It is noted that while wind turbines are obviously a new form in the landscape, it is likely that over time their presence will be more prevalent in Maine, reducing the potential for wind projects to be viewed as foreign elements in the landscape. This analysis concludes that the Project will not adversely undermine or alter the existing character of the area.

5.1.3 The expectations of the typical viewer

Viewer expectations have been addressed in Sections 4.1.9 and 4.3 of this VIA. In addition, the research, interviews and field review conducted yield the sense that local anglers and private camp owners occasionally visit these lakes, but they do not draw visitor-ship extensively from out of state - there is relatively little tourism infrastructure in the area in the form of lodging, restaurants and other amenities for visitors. As part of this assessment, lake use (or lack thereof) was observed on several different occasions on many of the lakes within the study area. As compared with other recreational areas in Maine, these lakes in general do not see a lot of use, and the area is not considered a tourism center. There are a number of seasonal home and camp owners, however, especially in the area of Lakeville, which results in more concentrated use of those lakes (in particular Bottle Lake, Duck Lake, western shore of Junior Lake.) However, the population of the area would still be considered quite sparse.

Many of the lakes within the viewshed are somewhat challenging to access and their locations are not always well marked. Scraggly Lake and a number of other lakes do not include trailer-accessible public boat launches, which limits access (Keg Lake, Junior Lake, Scraggly Lake), although some of these lakes can be accessed by stream connections when the water level is high enough. The seasonal nature of lake use also means that the visual impact of the Project would be lessened by the fact that the amount of viewers is much less during the cold months.

Interviews with guides, local officials and the author of *Quiet Water Maine* provide some sense of use and expectations (see Section 4.3). It can be initially concluded from these insights that the view of wind turbines will not unequivocally undermine viewer expectations or their experience, and that those whose expectations have not been satisfied will have other options to conduct their activities in a manner that will be acceptable. Fisherman, hunters and other visitors are not visiting primarily because of the scenic beauty of the area, but for the quality and quantity of fish and game. The lakes are pleasing and views are a part of the landscape, but it is not the primary reason people hunt and fish on these lakes. While scenery and undeveloped lakeshores are valued, these qualities do not appear to be as important as water quality, fresh air, lack of shoreline development and the overall fishing experience. There is generally an expectation of quiet and solitude, and the turbines will not impact these features. Public access will not change, noise quality will not change, wildlife will not change, and the foreground views, which create and invoke the feeling of isolation, will not change. Finally, whether or not a viewer will be impacted by this Project will also depend upon his or her understanding of and attitude towards wind power. While it is likely that some users will not respond positively to seeing the turbine array, there will be others that will recognize the purpose, need, form and function of this relatively new form of energy generation.

5.1.4 The project purpose and the context of the proposed activity

This Project, as proposed, is a good fit for an area that has experienced extensive forest resource use and management. It is sited in an area identified for Expedited Permitting of Wind Energy development. It will not impact existing uses and resources within the Project area and, in fact, will be compatible with the continued use of the area for commercial timber harvesting. The Project will take advantage of existing access roads in its vicinity and will connect with the existing transmission system several miles to the north of the Project site. The Bowers Wind Project will further establish the area as a suitable and desirable location for wind energy development.

5.1.5 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,

The scope and scale of the potential effect of views of the generating facilities on the scenic resource of state or national significance.

These criteria, taken together, are addressed extensively in this analysis. Exhibit 1: Potential Viewshed Map, Table 1. Summary of Resources of State and National Significance, and Section 4.1.9 Overall Impact Evaluation, provide the basis for the overall conclusions with regard to these criteria:

1) The extent, nature and duration of public uses of the identified and affected scenic resources within the Project viewshed (4 lakes in the 3 mile Project radius and 9 lakes in the 3-8 mile Project radius) will not be unduly impacted to the extent that the public's use and enjoyment of those resources will be unacceptably compromised. There are many areas of the lakes that will have limited or no visibility. Users can conduct their activities in a manner to address the extent, nature and duration of views of the Project that they wish to have or not have.

2) The lakes are not so unique and so distinct as to be unreasonably impacted by Project views to the point where the lake qualities and conditions have been materially affected - that is to say that the natural character of the lakes themselves will not be altered. Shorelines will remain intact, forest cover will not be affected by the Project, and those who recreate on the lake will still be able to fish, paddle, camp in a manner that is unaffected by the Project's presence - whether it is 2.16 miles distant (approximate closest viewing point on Pleasant Lake to nearest proposed turbines on Dill Hill) or in the background over 5 miles away (6.34 miles to nearest visible turbine from Sysladobsis Lake). The only impact will be a psychological one - not a physical impact that will affect the quality of the fishing, the "intactness" of shoreline landscape, or the nature of the waters people boat and paddle on. It is difficult to determine each individual's threshold for having a positive or negative experience based on viewing wind turbines - there are many factors, which inform the individual's response to these projects. Acceptance is growing - based on surveys, interviews, growing public acceptance of wind, and the eventual recognition that wind energy is part of Maine's working landscape in the 21st century.

3) Distance serves to lessen visual impacts for this Project, in which the majority of lakes are located outside the standard regulatory distance of three miles. None of the views of the turbines can be considered foreground views, and in no cases could the turbines be described as "looming" over the observer. The majority of views for these lakes would be considered middleground views at fewer than five miles, while many would constitute background views at over five miles. Distance serves not only to make the turbines appear smaller, but also results in the turbines taking up less percentage of the overall viewshed. Atmospheric haze over distance further serves to soften the appearance of turbines and their forms and blade movement would become less distinct.

4) "The scope and scale of the potential effect of views" will not be so extensive as to rise to an unacceptable impact level. The Evaluation Matrix integrates a range of factors that, taken together, account for a broad understanding of the potential for visual impacts and their scope and scale in relation to the individual lakes identified as either significant or outstanding.

5) Finally, the ability of this landscape to absorb change is another critical factor that reduces the potential for overall impacts from this Project. The terrain of this area is well suited to visually accommodate wind turbines, as it is characterized by complex rolling hills. The hills surrounding the Project site often serve to block or limit views of the turbines, and they provide visual relief

with their unaltered peaks and ridgelines. More distinct or visually dominant peaks in the area would draw the viewer's attention away from the Project in many locations. For the larger lakes in particular, the landscape has a feeling of expansiveness when viewed from the water. As such, the landscape appears capable of visually absorbing the proposed Project without undermining its essential visual qualities. In addition, the height of the Project ridges are sufficient in relation to turbine height to prevent the turbines from visually dominating the landforms. Likewise, the Project ridges are not so high that they would elevate the turbines to a height of undue prominence in the landscape.

5.2 Overall Conclusion

The foregoing analysis and summary is based on a methodology employed to provide an overall and systematic ranking and evaluation of impacts to scenic resources. The potential visual impacts of this Project are limited to portions of 1 lake identified as "outstanding" by the referenced inventories, and 7 additional lakes identified in the same inventories as "significant." Only 4 lakes are considered to be within the 3-mile Project radius and these lakes would have "middle ground" views of the Project - the closest at 2.16 miles. No other state or national scenic resources are affected by this Project within the 3 and 8-mile radii. The Evaluation Matrix employs a ranking approach and uses 9 individual categories for impact assessment. This evaluation yielded an overall finding that the Project will result in a *low scenic impact*. Therefore, it is concluded that **the Bowers Wind Project will not have "an unreasonable adverse affect on the scenic values and existing uses related to scenic character of a scenic resource of state or national significance."**